A Comprehensive Analysis of the Integrated Waste Management Act Diversion Rate Measurement System

Final Report to the Legislature

November 13, 2001

California Environmental Protection Agency
Integrated Waste Management Board

S T A T E O F C A L I F O R N I A

Gray Davis
Governor

Winston H. Hickox
Secretary, California Environmental Protection Agency

INTEGRATED WASTE MANAGEMENT BOARD

Linda Moulton-Patterson
Board Chair

Dan Eaton
Board Member

Steven R. Jones
Board Member

José Medina
Board Member

Michael Paparian
Board Member

David A. Roberti
Board Member

•

Mark Leary
Executive Director

For additional copies of this publication, contact:

Integrated Waste Management Board
Public Affairs Office (MS-6)
1001 I Street
P.O. Box 4025 (mailing address)
Sacramento, CA 95812-4025
www.ciwmb.ca.gov/Publications
1-800-CA WASTE (California Only) or (916) 341-6306
Publication # 340-01-017
November 2001

Printed on recycled paper containing a minimum of 30 percent postconsumer content.

Preface

Report Mandate

The California Integrated Waste Management Board (Board) is required to prepare a report to the legislature on improvements to the disposal reporting system using a working group (Public Resources Code [PRC] section 41821.5). The report to the legislature is due on January 1, 2002. The Board expanded the review to include the entire diversion rate measurement system and the role of disposal reporting in that system.

About the Integrated Waste Management Board

The full-time, six-member Integrated Waste Management Board, established by the California Integrated Waste Management Act (AB939, Sher, Chapter 1095, Statutes of 1989 [IWMA, 1989]) is responsible for administering the State's solid waste management regulatory, programmatic, and policy activities. The Board's membership represents a cross-section of interests, including four gubernatorial appointees: one representing the solid waste industry, one representing environmental concerns, and two representing the public. The Senate Rules Committee and Speaker of the Assembly also appoint one Board member each to represent the public. Board members elect the Board Chair.

The Act also created a nine-member Local Government Technical Advisory Committee with members appointed by the Governor, Senate Rules Committee, and Speaker of the Assembly to advise the Board on local government solid waste issues. Under the terms of the Act, the committee's charter expired January 1, 1999.

Report Organization

This report, required by Chapter 740, Statutes of 2000 (Committee on Environmental Quality, SB 2202), evaluates the diversion measurement system and the disposal reporting system (DRS). Chapter 1 contains the executive summary; Chapter 2 covers an introduction to the components of the diversion rate measurement system and the working group structure for the board review; Chapter 3: Recommendations contains recommendations from the working groups and the Board to improve the diversion rate measurement system; Chapter 4: The Disposal Reporting System (DRS) provides an overview of the existing the specifics on the DRS issues, and analysis and recommendations; Chapter 5: The Adjustment Method (AM) provides an overview of the existing AM issues and recommendations, and Chapter 6: Review of Alternatives to the Existing System contains ideas on how to improve the measurement system to make it more accurate and flexible and other ways to meet the spirit of the IWMA. Additionally, Appendix A contains specific links to the Board's Web site, www.ciwmb.ca.gov, to enable the reader to access more detailed information. Appendices B through F contain technical information and are available online at www.ciwmb.ca.gov/LGLibrary/SB2202Rpt/ and in hard copies upon request.

Table of Contents

List of Figures

List of Tables

List of Appendices

NOTE: Technical appendices B through F can be found online by accessing the Board's Local Government Library at www.ciwmb.ca.gov/LGLibrary/SB2202Rpt/.

Chapter 1 Executive Summary

In the 1980s, California has faced landfill siting problems and a projected shortage of landfill capacity that could impact the health and safety of Californians. The California Integrated Waste Management Act (AB939, Sher, Chapter 1095, Statutes of 1989 [IWMA]) established a framework to limit reliance on landfills and waste-to-energy projects and give greater weight to recycling, waste prevention, reduction, and composting methods. The IWMA required each city and county to prepare and implement plans to divert 25 percent of solid waste in 1995, and 50 percent in 2000 from landfills. Diversion activities include source reduction (also called waste prevention), recycling, and composting. Cities, counties, and regional agencies that fail to meet the mandates face potential penalties of up to $10,000 per day.

In 1989, the diversion rate measurement system was generation-based and each city and county was to quantify diversion and disposal (generation) in 1995 to find out if they met the 25 percent diversion requirement, and again in 2000 for the 50 percent diversion requirement. Cities and counties expressed concern that the most difficult and costly requirement was obtaining accurate information on quantities and types of wastes recycled or otherwise diverted, and calculating waste prevention. Waste diversion activities are decentralized and dispersed, as compared to disposal that occurs at a limited number of facilities. Recyclers and businesses were reluctant to provide information that could give competitors an advantage.

The solution was to redesign the measurement system. With the passage of Chapter 1292, Statutes of 1992 (Sher, AB 2494), measurement of 25 and 50 percent diversion was changed to a disposal-based measurement system and the Integrated Waste Management Board was required to establish a mechanism to estimate disposal tonnages through periodic surveys. Diversion achievement would be determined by comparing jurisdiction disposal amounts (as measured by the disposal reporting system [DRS]) to the estimated annual waste generation, adjusted for changes in population and economics. The adjustment is needed so jurisdictions are not penalized for changes in population and economics outside their control that can have significant impact on the amount of waste generated. AB 2494 also allowed jurisdictions to join together in regional agencies to reduce costs and improve measurement accuracy.

Over the last five years, concerns have been raised about the accuracy of the DRS. SB 2202 (Sher, Chapter 740, Statutes of 2000) requires the Board to convene working groups to assist in preparing a report to the Legislature on DRS improvements. SB 2202 requires the Board to recommend regulatory and statutory changes to address DRS deficiencies and improve accuracy. Since the DRS is an integral part of the diversion rate measurement system, but is only one component, the Board decided to undertake a review of the entire system in the report to the Legislature. In addition to the DRS, the adjustment method and alternatives to the existing system were examined and included in the report to the Legislature. The Board review of base-level generation issues was already well underway when SB 2202 was enacted.

Local implementation of diversion programs has created a diversion infrastructure that includes collection and processing facilities and equipment, bins, trucks, and personnel. Investments of hundreds of millions of dollars have been made in this infrastructure throughout California. A key issue is the appropriate balance between resources needed to improve accuracy and resources needed to establish and maintain the diversion programs and infrastructure.

Structure of Board Review

The Board held public workshops in January 2001 to gather input on the diversion rate measurement system and potential solutions. Three working groups, comprised of volunteers from jurisdictions, waste and materials management industries, consultants, colleges, and environmental groups, met March through May of 2001. Each of the working groups considered data, analyses, potential solutions for the DRS, adjustment method or alternatives to the existing system. A synthesis group, comprised of six members of each of the three working groups, met in June and July to synthesize ideas from all groups and develop a set of recommendations that address the diversion rate measurement system as a whole.

Base-Level Generation

Base-level generation is the starting point of the disposal-based diversion rate measurement system. For most jurisdictions, base-level generation (diversion tons + disposal tons) was established in their 1990 source reduction and recycling element (SRRE) and approved by the Board. The base level is the foundation for diversion rate estimation and plays a crucial role in the accuracy of a jurisdiction's diversion rate estimate. Many assumptions about California's waste stream that were used in establishing the original base levels are not supported by current data. Data gathered since 1990 shows:

- Waste flow patterns are much more variable and complex than originally assumed in 1990. Waste commonly flows between counties.
- Jurisdictions with large numbers of businesses and industries generate more waste than jurisdictions that are primarily residential.
- About half of California's landfills did not have scales in 1990 and about ten percent currently do not have scales. Tonnage estimates have improved with use of scales.
- A considerable amount of waste is not hauled by franchised or licensed haulers. Self-haul waste (hauled by someone whose primary business is not hauling waste) is about 13 percent of the statewide waste stream and is much higher in some areas.

The disposal-based measurement system calculates a diversion rate by applying the adjustment method to base-level generation. Large errors that understate or overstate base-level generation can result in inaccurate diversion rates. Thus, inaccuracies in base-level data can have a significant adverse impact on the estimated diversion rate. Therefore, base-level inaccuracies could negatively impact jurisdictions' ability to quantitatively demonstrate their actual progress toward achieving the 25 percent and 50 percent diversion goals. In addition to base-level generation tons for that year, its predictive value as a bench mark for future waste generation estimates erodes with changes in the nature of jurisdiction solid waste produced; for example, a manufacturing community becomes a "bedroom community" and waste types and amounts change.

In early 2001, the Board adopted a diversion study guide to provide jurisdictions with guidance on preparing a new base-level generation study. About 90 jurisdictions have new Board-approved, base-level, generation studies. About 360 jurisdictions have 1990 or 1991 base levels.

Adjustment Method

The adjustment method relies on a jurisdiction's base-level generation, a standard formula to estimate waste generation, and avoids measuring diversion. The method is low-cost for jurisdictions because the formula is relatively simple and relies on data from State agencies. This is the first method of this type in the United States.

Issues and Analyses

Issues associated with the adjustment method include:

- Heavy reliance on the base-level generation amount (greater influence on estimates of future year waste generation than any adjustment method factor).

- Whether the standard formula works well for all jurisdictions (for example, does it work well for a jurisdiction with a low population and a high proportion of business and industry and vice versa).
- Whether other sources of data on population and the economy provide accurate estimates of waste generation.
- Whether changes in the nature of solid waste produced (for example, change from manufacturing heavy machinery to assembly of computers results in different amounts and types of waste) may make a jurisdiction's base-level generation obsolete.
- Use of State data in the formula that is generally more accurate at the countywide or regionwide level than for individual jurisdictions.

Data analyses show that the adjustment method is an estimation tool that works reasonably well for most jurisdictions but has some accuracy issues. There are a number of sources of data that provide generation estimates similar to the existing factors used in the formula and seem to help the most if the jurisdiction is small or has unusual extremes of population and economic indicators. There is more variability in small jurisdiction population and economic factors over time, so accuracy of the adjustment method will be more variable for small jurisdictions. Further statistical analysis is needed to determine if entirely new adjustment method factors and weights would improve the accuracy of the adjustment method formula. Expanded dissemination of existing information and publication of new study results should improve adjustment method understanding and application.

Disposal Reporting System

The Board was required to develop a system to track jurisdiction of waste origin using periodic surveys because the disposal-based measurement system is heavily dependent on accurate disposal data. The Board set minimum standards for origin surveys, one week per quarter, to allow local flexibility. Many counties have established more stringent origin survey requirements. The DRS has given jurisdictions a better understanding of their waste flow and disposal data.

Issues and Analyses

Issues associated with the DRS include:

- Complex boundaries make it difficult to identify a jurisdiction of waste origin.
- Reliance on vehicle drivers for information on jurisdiction of waste origin.
- Accuracy of a one-week-per-quarter waste origin survey.
- Lack of scales at about half the landfills in 1990 and about ten percent of landfills in 2001.
- Different standards at different facilities that impact whether inerts and special waste count as disposal.
- Lack of enforcement mechanisms to assist jurisdictions in resolving issues due to misinformation or untimely information.

Data analyses show that waste hauler drivers may not know the jurisdiction of origin for hauling routes that serve multiple jurisdictions. In some areas, there may be economic incentives for vehicle drivers to provide inaccurate jurisdiction of origin information. Counties that require jurisdiction of origin information from waste hauler dispatcher or billing records have fewer waste origin issues. Self-haul drivers (other than franchised haulers) may not be asked for origin information or may not report waste origin correctly. Residential self-haul drivers may comprise a large portion of vehicles using a landfill, but only a small portion of disposal. Statewide, residential self-haul is about three percent of the statewide waste stream.

There can be significant error in surveying one week per quarter versus every load every day. This is particularly true for small jurisdictions with less than 25,000 people or 25,000 tons annual disposal. This makes sense in terms of arithmetic, since an extra 10 tons of waste disposed would make a bigger difference for a jurisdiction with 50 tons of disposal than for a jurisdiction with 5,000 tons of disposal. Surveying every load every day is more accurate, but there are still potential errors in assigning jurisdiction of origin. Countywide disposal data is more stable, except for counties with low countywide population and tons disposed.

Alternatives to the Existing Diversion Rate Measurement System

A wide range of alternatives has been intensely debated since development of the IWMA in 1989. The alternatives considered in this review address issues with the disposal-based diversion rate measurement system. These alternatives range from increased support for activities that increase the amount of material diverted from disposal to specific changes in the law to overcome accuracy issues.

Issues and Analyses

Some of the issues addressed include:

- The right balance between measuring diversion progress and diversion program implementation to allow a shift of resources from diversion rate measurement to diversion program implementation.
- Markets for recycled materials are critical to diversion program success.
- Jurisdictions bear the responsibility of meeting IWMA requirements but do not control all the waste generators within their borders.
- Appropriate measures of success for small and rural jurisdictions that have a disproportionate share of errors.
- Whether changing the diversion rate measurement level from each city and county to countywide or regionwide would improve diversion rate measurement accuracy.

Many of the alternatives discussions were by their nature more conceptual, so the types of ideas discussed are summarized here. Instead of determining compliance with the IWMA based primarily on a calculated diversion rate, especially when that rate is derived from a measurement system with recognized potential errors, information on diversion program implementation should be carefully considered. Since small and/or rural jurisdictions are prone to more measurement problems, this consideration is especially important for them. Efforts to promote countywide and/or other types of regional measurements can improve accuracy. Resolution of issues about what counts as disposal (special waste and inerts) can also resolve accuracy and equity issues. Several additional options were discussed that would change how compliance with the IWMA is measured, but since the issues are complex, more work and time are needed to fully evaluate the ideas.

Actions can be taken to aid and enhance local government efforts to achieve the diversion goals, including continued statewide efforts to increase and develop markets, expanding responsibility for waste diversion and resource conservation, removing inadvertent barriers to diversion, and improving training and education for those on the front lines of waste diversion efforts.

Recommendations

The working group process allowed the Board to obtain expertise from a variety of stakeholders and an independent review from Board staff in developing recommendations to resolve complex issues. This report includes both working group and Board recommendations.

Many of the recommendations resolve several problems. The recommendations from the individual working groups were reviewed and consolidated. The synthesis group, made up of members from each individual working group, reviewed all of the recommendations. The synthesis group believes that the set of recommendations, taken as a whole, will improve accuracy of the diversion rate measurement system, support activities that increase diversion, and lead to further investigation of the most promising alternatives to the existing diversion rate measurement system.

The Board approved most of the synthesis group recommendations. However, there are several specific recommendations whose implementation the Board does not support. These items are identified throughout the report. The recommendations are generally conceptual in nature and details of how they would be implemented would be developed in an open process involving all stakeholders. The recommendations are grouped into several categories. Summary tables (Tables 1-1 and 1-2) are included below and a more complete table is included in the recommendations chapter.

An overriding recommendation from all the working groups and the Board is to recognize potential inaccuracies in all components of the diversion rate measurement system. One of the key findings of this review of the diversion rate measurement system is that a diversion rate is an estimate, not an absolute value, and there are potential inaccuracies in each part of the diversion rate measurement system. One difficulty faced by jurisdictions and decision makers is how to fairly assess the accuracy of a diversion rate estimate, given the many variables and the potential for inaccuracies involved. Stated differently, a key issue is how should an estimated diversion rate be weighted in comparison to diversion program information? Another key issue for jurisdictions and decision makers is the level of resources required to improve accuracy, and the appropriate balance between resources to improve accuracy and resources to implement diversion programs.

Accuracy

These recommendations focus on improving accuracy and include:

- Recognition that potential errors in the diversion rate measurement system make the diversion rate an estimate, not an absolute value.
- Establishing statewide standards for daily origin surveys, except in rural areas, and for expanded information on alternative daily cover.
- Resolving issues of consistency with what counts as disposal.
- Increasing incentives for regional agencies.
- Continued use of the adjustment method formula and factors, and addition of other tested adjustment method factors and formulas.

The Board supports most of these recommendations. The Board, with the exception of the methodologies, recommended to resolve issues of inconsistency with what counts as disposal. In addition, the Board recommends that jurisdictions be asked to explain why their base-level generation still represents their jurisdiction if the growth rate is outside the tested limits for the adjustment method. This recommendation should help jurisdictions and the Board consider to what extent a base-level is still a reasonably accurate benchmark for estimating future year waste generation.

Alternatives to Numerical Compliance

These recommendations focus on alternatives to relying on diversion rates in determining compliance with the requirements of the IWMA and include:

- Focusing on diversion programs rather than diversion rates.

- Evaluating diversion rate accuracy (red flags) in the Board's biennial review of jurisdiction progress in meeting IWMA requirements using a tiered approach.
- Allowing rural jurisdictions to demonstrate IWMA compliance based on diversion program implementation and effectiveness.
- Allowing countywide diversion rate measurement without a regional agency if jurisdictions are implementing their diversion programs.

The Board supports these recommendations.

Expand Responsibility and Enhance Control

These recommendations expand responsibility for diverting waste and provide a variety of options to enhance control and include:
- Developing a model ordinance for jurisdictions to establish local ordinances to implement disposal reporting and assess penalties.
- Changing state minimum standards for disposal facilities to require cooperation in DRS origin surveys.
- Requiring disposal facilities to supply jurisdictions with information at the same time it is sent to counties.
- Establishing statewide enforcement and penalties for DRS misinformation and untimely information.
- Removing unintended institutional barriers to establishing diversion programs and siting diversion facilities.
- Requiring schools to work in coordination with local jurisdiction recycling coordinators to divert waste.
- Requiring disposal facilities to divert waste from self-haul customers.

The Board takes no position regarding the recommendations to develop model ordinances, to require schools and State agencies to coordinate diversion with jurisdictions, or to require facilities to divert self-haul waste; current law encourages cooperation. Furthermore, with respect to removing institutional barriers to siting diversion facilities, the Board must carefully balance the advantages of streamlining the system with protecting the health and safety of Californians and the environment.

Markets

The synthesis group recommends the Board focus on market development, since markets are critical to the success of diversion programs. The Board strongly supports these market development activities in its recently adopted Strategic Plan.

Change What Counts as Disposal

The synthesis group recommends the Board change what counts as disposal to resolve inequities and promote power generation. These recommendations include:
- Excluding inert waste at mine reclamation facilities (the four in the San Gabriel Valley) not subject to Board fees from the DRS.
- Excluding special waste (at Class II facilities) from the DRS.
- Removing the ten percent diversion limit for burning forest debris to produce power.

The Board does not support excluding inert waste disposed at mine reclamation facilities from the DRS at this time. However, the Board may revisit the diversion rate measurement aspect of the inert waste issue in the upcoming construction and demolition waste regulations. The Board will continue to rely on existing Board policy to exclude disposal of special waste at Class II facilities if the special waste is required to be disposed by a control agency. With regard to removing the ten percent limit on burning forest debris for power, the Board's recently adopted Strategic Plan supports, in general, energy recovery from waste through clean technology.

Training

These recommendations increase Board training on the DRS and the adjustment method and provide standard Board training for jurisdiction staff responsible for implementing diversion programs.
The Board supports most of the specific recommendations in this category, but it does not support the concept of a Board-sponsored certification program for local government staff.

Ideas Merit Further Study

These recommendations include ideas that have merit, but they will require additional study to determine whether they should be considered further. They include:

- Continuing analysis of the adjustment method formula and factors.
- Placing more responsibility for diversion on generators of difficult-to-handle waste.
- Removing the ten percent diversion limit on non-burn transformation to encourage development of methods to handle hard-to-divert materials; for example, contaminated organics that are less desirable for composting.
- Developing a method to evaluate IWMA compliance based on program implementation.

Table 1-1. Summary Table of Board Recommendations

Category and Reference #	Required Actions	Synthesis Working Group Recommendations	Board Recommendations
Accuracy (ACC 1)	Policy	Recognize diversion rate estimate is an indicator, not a measured value.	Recommended by Board.
Accuracy (ACC 2)	Policy	Board should conduct increased county or regional audits of solid waste disposal facility disposal records.	Recommended by Board.
Accuracy (ACC 3)	Policy	Update Local Enforcement Agency (LEA) Alternative Daily Cover (ADC) Advisory #48.	Recommended by Board.
Accuracy (ACC 4)	Regulation	Board should require the following from solid waste disposal facilities: Conducting daily surveys and weighing every load except cars and pickups. Exempting small rural solid waste facilities from the daily survey. Scales at all solid waste facilities above certain tonnage. Solid waste facilities to post signs about origin collection. Standards for collecting origin and disposal tonnage information from waste hauler dispatchers.	Recommended by Board.
Accuracy (ACC 6)	Statute	Increase incentives/remove disincentives to form regional agencies.	Recommended by Board.
Accuracy (ACC 7)	Policy	Continue using the existing adjustment method.	Recommended by Board.
Accuracy (ACC 8)	Policy	The Board should: Continue use of the existing adjustment method factors. Monitor 2000 Census data publication & investigate potential issues. Add county level Employment Development Department (EDD) Industry Employment as default factor. Allow use of alternative data sources for factors.	Recommended by Board.
Accuracy (ACC 9)	Regulation	Consider use of alternative adjustment method factors that require regulations revisions.	Recommended by Board.

Category and Reference #	Required Actions	Synthesis Working Group Recommendations	Board Recommendations
Accuracy (ACC 10)	Policy	Not recommended by synthesis group.	Ask jurisdictions to explain why base years are valid if growth rates are greater than 14 percent (the adjustment method test limit).
Alternatives to Numerical Compliance (ATNC 1)	Policy	Board recognizes potential for significant errors in disposal reporting system (DRS) and adjustment method. Focus on diversion programs rather than tonnage/diversion rates.	Recommended by Board.
Alternatives to Numerical Compliance (ATNC 2)	Policy	Develop standard “red flag” table of diversion rate accuracy indicators for each jurisdiction and include it in biennial review agenda items. Board would use tiered approach, based on the accuracy indicators, to evaluate diversion rate accuracy in Board biennial reviews of jurisdiction progress in meeting the requirements of the Integrated Waste Management Act (IWMA).	Recommended by Board.
Alternatives to Numerical Compliance (ATNC 3)	Policy, Regulation, or Statute	Allow rural jurisdictions to demonstrate IWMA compliance based on “good faith efforts” in diversion program implementation and effectiveness during the Board biennial review, instead of spending resources on fixing numerical issues.	The Board proposes regulations or statutes to reduce rural requirements for resolving numerical issues prior to the Board biennial review.
Alternatives to Numerical Compliance (ATNC 4)	Statute	Within a county, verify diversion program implementation at the jurisdictional level; if all jurisdictions are implementing their diversion programs, allow use of a countywide diversion rate.	Recommended by Board.
Responsibility & Control (R&C 2)	Regulation	Revise regulations to make solid waste disposal facility cooperation in DRS a requirement of a solid waste facility permit.	Recommended by Board.
Responsibility & Control (R&C 3)	Regulation	Landfill and transfer station operators send jurisdictions information on tons disposed by the jurisdiction at the same time the operators are required to send the information to the county.	Recommended by Board.

Category and Reference #	Required Actions	Synthesis Working Group Recommendations	Board Recommendations
Responsibility & Control (R&C 4)	Statute	Authorize assessment of penalties for misinformation and lack of timely information in the DRS. Establish due process procedures to address errors in DRS. Penalties would apply to waste haulers, landfills, materials recovery facilities, and transfer stations. Board would enforce and assess any penalties.	Recommended by Board.
Responsibility & Control (R&C 5)	Policy	Further promote jurisdiction focus on largest individual waste generators, largest waste sectors, and most common materials in the waste stream to enhance waste reduction, recycling, and composting.	Recommended by Board.
Markets (MKT 1)	Statute	Focus on developing markets for recycled materials through a variety of activities, including mandated programs.	Board's recently adopted Strategic Plan strongly supports creation and expansion of sustainable markets.
Change What Counts (CWC 3)	Statute	Remove the 10% diversion limit for direct burn transformation processes for forest debris (also called slash) used for power generation.	Board's recently adopted Strategic Plan supports, in general, energy recovery from waste through clean technology.
Training (TRN 1)	Policy	The Board shall provide: DRS training to facility supervisors and counties. Adjustment method training.	Recommended by Board.
Training (TRN 2)	Policy	Increase the number and types of DRS reports available on the Board's Web site.	Recommended by Board.
Further Study (FS 1)	Policy	Continue further analysis of the accuracy of adjustment method formula.	Recommended by Board.
Further Study (FS 2)	Statute	Place more responsibility for diversion on generators of difficult-to-handle waste.	Recommended by Board.

Category and Reference #	Required Actions	Synthesis Working Group Recommendations	Board Recommendations
Further Study (FS 3)	Statute	Remove the existing ten percent diversion limit for non-burn transformation.	Board's recently adopted Strategic Plan supports, in general, energy recovery from waste through clean technology.

Table 1-2. Summary Table of Recommendations on which Board takes different or no position

Category and Reference #	Required Actions	Synthesis Working Group Recommendations	Board Recommendations
Accuracy (ACC 5)	Statute and/or Regulation	Remove uncertainties/inconsistencies with how some materials (for example special waste and inerts) are counted as disposal at different solid waste disposal facilities.	See CWC 1 and 2.
Responsibility & Control (R&C 1)	Policy	Board should draft model ordinance so jurisdictions can require commercial self-haulers to report origin information.	No position.
Responsibility & Control (R&C 6)	Regulation	Remove institutional barriers to establishing diversion programs and diversion facilities.	No position. The Board must balance the advantages of streamlining with protecting the health and safety of Californians and the environment.
Responsibility & Control (R&C 7)	Statute	Adopt new laws requiring solid waste disposal facilities to divert waste from self-haulers.	No position. The Board must balance the advantages of this requirement with protecting the health and safety of Californians and the environment.

Category and Reference #	Required Actions	Synthesis Working Group Recommendations	Board Recommendations
Responsibility & Control (R&C 8)	Statute	Require schools to work in coordination with local jurisdiction recycling coordinators to divert waste.	No position. Current law encourages cooperation.
Change What Counts (CWC 1)	Statute and/or Regulation	Exclude inert waste, not subject to the BOE fee and disposed at mine reclamation facilities, from DRS.	Board voted at its July 2001 meeting that inerts at Board-permitted mine reclamation sites count as disposal. May be revisited in upcoming construction and demolition regulations.
Change What Counts (CWC 2)	Statute	Board should support proposed legislation that will exclude Class II-type waste from counting in the diversion rate measurement system..	Rely on existing Board policy to exclude disposal of special waste at Class II facilities as required by control agencies.
Training (TRN 3)	Policy	Board shall provide standard curriculum training for local government waste management staff.	No position
Further Study (FS 4)	Statute	Establish a menu of diversion programs appropriate for jurisdiction characteristics and evaluate jurisdiction performance based on implementing programs and meeting effectiveness criteria such as participation levels.	No position

* **Complete table can be found in the Recommendations Chapter**

** ACC—Accuracy in diversion rate measurement
ATNC—Alternatives to numerical compliance
R & C—Expand responsibility and enhance control
MKT—Markets
CWC—Change what counts as disposal
TRN—Training
FS—Ideas merit further study

Chapter 2 Introduction

The California Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989 as amended [IWMA]) established a generation-based diversion rate measurement system. Each city and county was to quantify diversion and disposal (generation) in 1995 to find out if they met the 25 percent diversion requirement, and again in 2000 for the 50 percent diversion requirement.

Accurate information is essential for each city, county and regional agency to use in measuring its diversion program successes. Jurisdictions expressed concerns that the most difficult and costly requirement was obtaining accurate information on quantities and types of wastes recycled or otherwise diverted, and calculating waste prevention. Waste diversion activities are decentralized and dispersed as compared to disposal that occurs at a limited number of facilities. Recyclers and businesses were reluctant to provide information that could give competitors an advantage.

The solution was to redesign the measurement system. With the passage of Chapter 1292, Statutes of 1992 (Sher, AB 2494), measurement of 25 and 50 percent diversion was changed to a disposal-based measurement system and the Board was required to establish a mechanism to estimate disposal tonnages through periodic surveys. Diversion achievement would be determined by comparing jurisdiction disposal amounts (as measured by the disposal reporting system [DRS]) to the calculated annual waste generation, adjusted for changes in population and economics. The adjustment was needed so jurisdictions were not penalized for changes in population and economics outside their control that can have significant impacts on the amount of waste generated. AB 2494 also limited jurisdiction base-level diversion claims for inerts, agricultural wastes, scrap metals, and white goods. These materials can be a large portion of the waste stream.

The passage of AB 2494 allowed cities and counties to enter into formal legal agreements as regional agencies. Cities and counties realize many benefits from working together as regional agencies to achieve economies of scale in developing and funding solid waste diversion programs, reducing duplication in preparation of waste management plans and progress reports, and improving diversion measurement accuracy. Regional agency members must rely on one another to succeed, and they jointly share the consequences of success or failure.

Diversion Rate Measurement System Review (SB 2202)

In 1999, with nearly five complete years of disposal reporting, the Board acquired a clearer picture of disposal activities in California, including complex waste flow patterns and waste flow variation over time. Since the 1995 DRS start, jurisdictions expressed concerns about difficulty in getting accurate information about waste allocated to jurisdictions—self-haul waste in particular—and special waste accounting.

Chapter 740, Statutes of 2000 (Sher, SB 2202), requires the Board to convene working groups to assist the Board in preparing a report to the Legislature by January 1, 2002, on DRS improvements. The Board is required to evaluate DRS accuracy under differing conditions and determine the status or implementation of the DRS at the local level by waste haulers; landfill, transfer station, and material recovery operators; and local agencies. SB 2202 also requires the Board to recommend regulatory and statutory changes to address DRS deficiencies. Board recommendations are to include how to improve DRS accuracy and implementation, streamline DRS reporting, and assist agencies to meet DRS requirements.

Since the DRS is an integral part of the diversion rate measurement system, but is only one component, the Board decided to undertake a review of the entire system and establish several working groups to assist in developing the report to the Legislature. In addition to the DRS, the adjustment method and alternatives to the existing system have been examined.

Structure for Review of the Diversion Rate Measurement System

In January 2001 the Board held two public workshops, one in Southern and one in Northern California, to gather input on diversion rate measurement and disposal reporting system issues and develop potential solutions to them. The information gathered from the public workshops was used as the starting point for review.

Statute requires that the Board convene working groups to assist the Board in preparing the disposal reporting system evaluation report to the Legislature (PRC section 41821.5). Past working groups have been successful in obtaining input from all types of parties on technical issues and providing opportunities for public input. At the December 2000 Board meeting, the Board directed that three working groups be established.

Two working groups focused on making improvements to the existing DRS and to the adjustment method. The third working group, alternatives, focused on evaluating alternatives to the existing diversion rate measurement system. A list of working group members can be found in Appendix A.

Each working group met during March, April, and May 2001 for a total of three daylong sessions each. The working groups were similar to past Board working groups. Each group was made up of representatives from the following:

- City, county, and regional agency representatives.
  - Urban and rural.
  - Northern, Central and Southern California.
  - Disposal facility operators and disposal facility users.
- Waste and materials management industry.
  - Various size operations.
  - Haulers.
  - Recycling facility and disposal operators.
- Consultants.
- Colleges and universities.
- Environmental and other special interest groups.

Board staff and working group members developed background information for discussion at the meetings. Working group members were encouraged to meet with representatives of jurisdictions in their geographic area and their professional associations to gather knowledge about local and statewide measurement issues and proposed solutions. The working groups provided information, opinions, and expertise from a wide range of interested parties and provided critical input on the proposed recommendations throughout the entire process.

The working group members reviewed and commented on data and materials prepared for each meeting, acted as a liaison for reviewers or other interested parties, reported outside comments to the working group, and developed recommendations for the Board to consider. Those who had an interest in following the issues closely—but were not working group members—could participate as reviewers. Reviewers were provided with all data and materials developed for and by the working group. They submitted comments to Board staff and/or working group members to be considered by the working groups in developing recommendations.

To ensure that the Board identifies workable changes to the diversion rate measurement system as a whole, a synthesis group was formed of members from each working group. The synthesis group held three meetings, in June and July 2001, to consider the working group recommendations. When developing its recommendations, the synthesis group considered how the activities would support the spirit and goals of the IWMA. They were also concerned with how the modifications would result in diversion rate estimate improvements, versatility, accuracy, ease of use, flexibility, and cost-effectiveness. Additionally, the synthesis group identified data gaps and areas not covered by the three working groups.

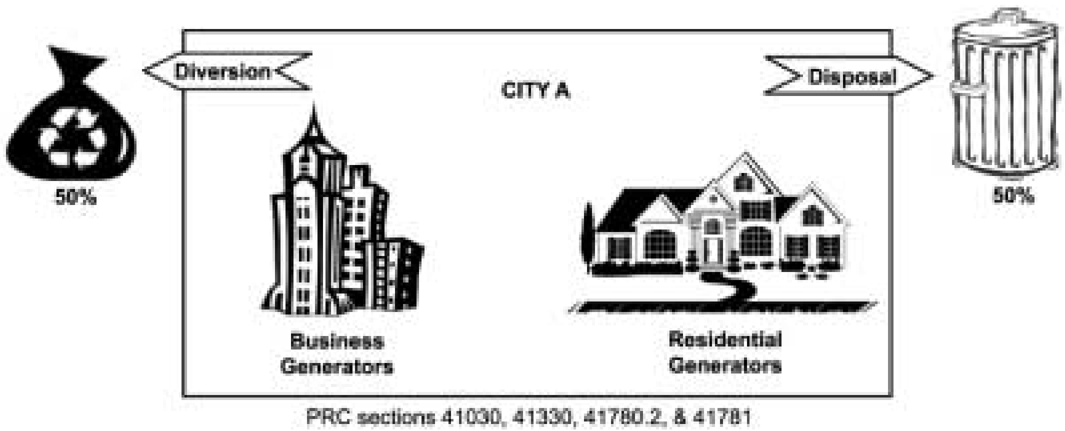
The Board has the ultimate legal responsibility for the report to the Legislature and, therefore, final approval of the recommendations to be included in the report. As the recommendations may later be incorporated into State regulations or new laws, there may be legal and procedural constraints on them. By inviting stakeholders to actively assist in developing recommendations, to advise Board staff and the Board about their special needs and interests, and to critique draft documents, the Board believes the best recommendations and most workable solutions can be developed to address current issues in the measurement system.

Diversion Rate Measurement System–The Big Picture

California's jurisdictions are required to implement a range of waste prevention, recycling, and composting programs to divert waste from disposal facilities. The diversion rate measurement system is one indicator of the success of the programs implemented.

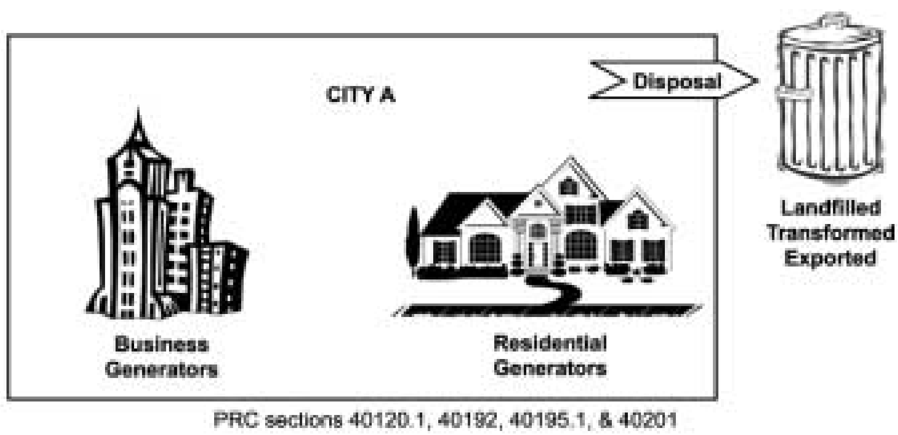
In 1990, each jurisdiction was required to perform a waste generation study that measured the waste produced by all businesses, institutions, and residents within its boundaries that was either diverted or disposed (see Figure 2-1). This generation study is the base level or foundation for diversion rate measurement in future years.

Figure 2-1. Divert 50 percent of waste generated within city's borders.



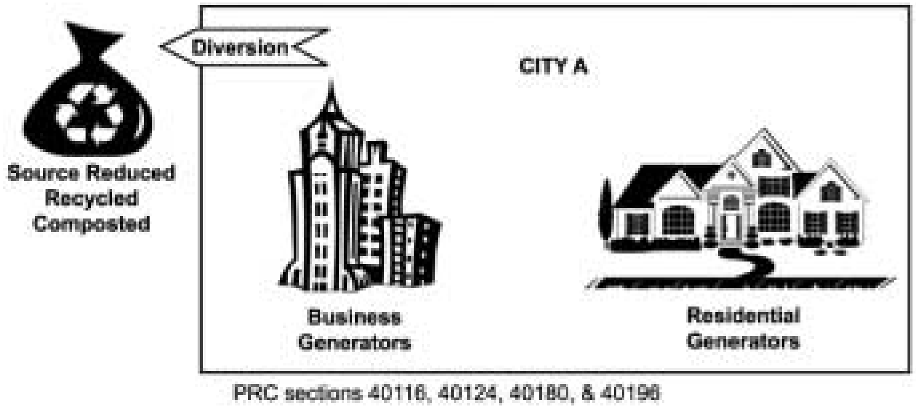
Disposal includes waste sent to Board-permitted landfills and transformation facilities or exported out of state (see Figure 2-2). In 1990, disposal tons reported for California jurisdictions ranged from 280 tons to about 3.8 million tons.

Figure 2-2. Disposal of waste generated within city's borders.



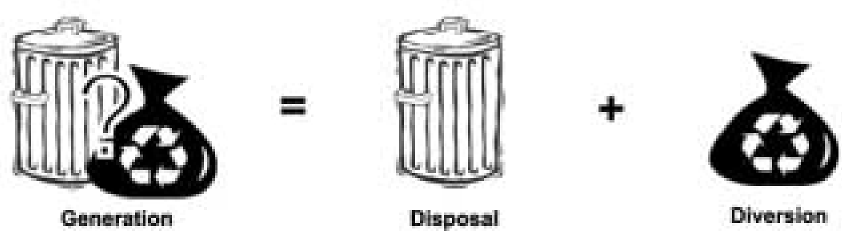
Diversion includes waste prevention activities and waste sent to recyclers and composters (see Figure 2-3). In 1990, diversion tons reported for California jurisdictions ranged from 12 tons to about 2.8 million tons.

Figure 2-3. Diversion of waste generated within a city's borders.



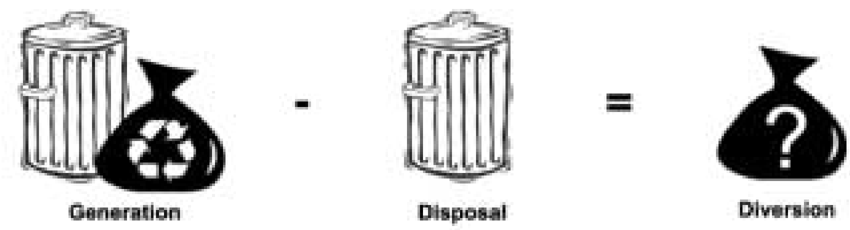
Waste generation is defined as disposal plus diversion. In a generation-based measurement system, disposal and diversion are measured and added together to determine generation (see Figure 2-4). This system of measurement was required through 1992 and is still an option for jurisdictions that want to measure both disposal and diversion.

Figure 2-4. Generation-based diversion rate measurement.



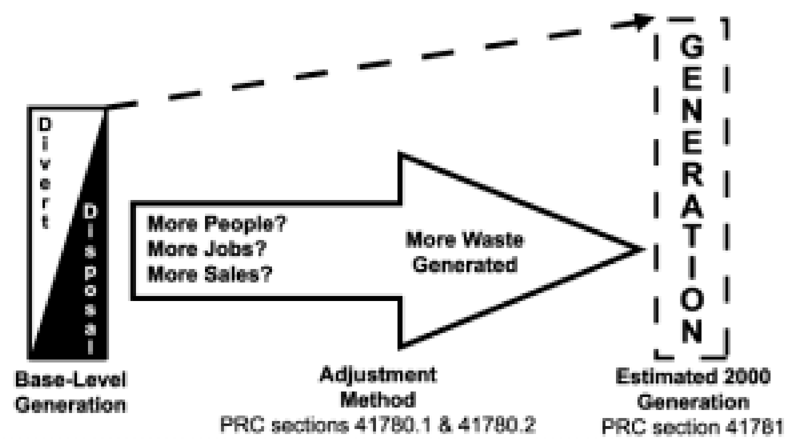
In a disposal-based measurement system, the definition of waste generation is the same (disposal plus diversion), but what is measured changes. In the disposal-based measurement system, waste generation is estimated, then measured disposal is subtracted from generation to estimate diversion (see Figure 2-5). The disposal-based measurement system is a "short cut" that does not require quantification of diversion. This system of measurement has been required since 1993.

Figure 2-5. Disposal-based diversion rate measurement.



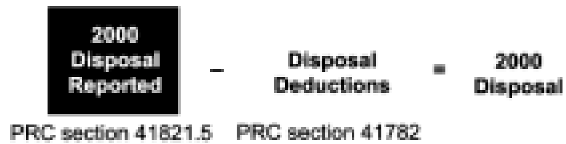
How is waste generation estimated in a disposal-based measurement system? Waste generation correlates closely with changes in population and economics. An adjustment method was developed that relies on this correlation to estimate waste generation. The adjustment method is applied to the base-level generation (usually from 1990) to estimate generation in a future year (see Figure 2-6).

Figure 2-6. The adjustment method concept.



The disposal tonnage used in the equation is obtained from the disposal reporting system (DRS), a statewide system for tracking the jurisdiction of origin for waste disposed. Deductions from DRS tons disposed are allowed for some types of waste, such as disaster waste and treated medical waste (see Figure 2-7).

Figure 2-7. Determining disposal tons.



Disposal tonnage is divided by estimated generation to obtain a disposal rate (see Figure 2-8). Finally, since generation is 100 percent of disposal plus diversion, the disposal rate is subtracted from 100 percent of generation to obtain the diversion rate (see Figure 2-9).

Figure 2-8. Determining the disposal rate.

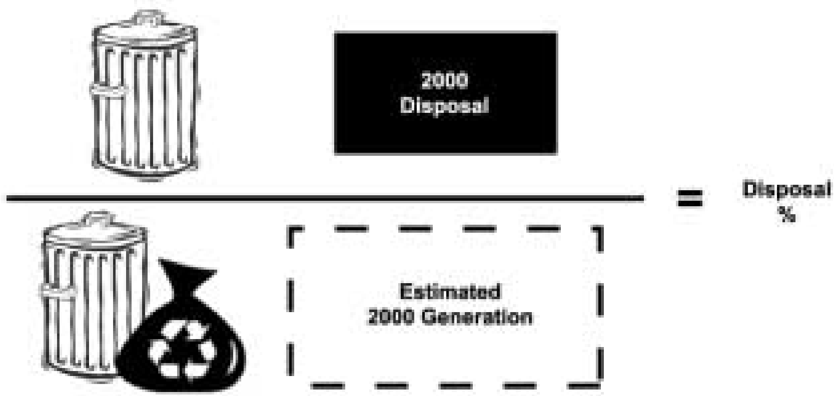
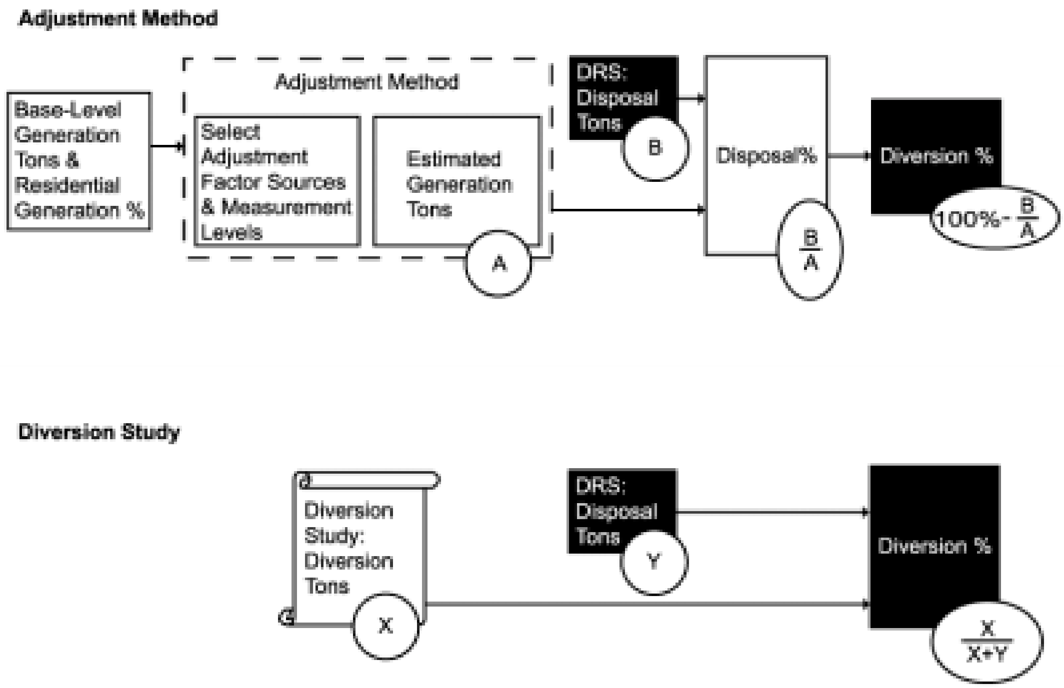


Figure 2-9. Determining diversion rate.

The next figure shows the components of disposal-based measurement and generation-based measurement (see Figure 2-10).

Figure 2-10. Components of disposal-based measurement and generation-based measurement.



What is measured and how it is measured has been simplified since 1990, when all jurisdictions were required to measure waste diversion activities as well as waste disposed. However, there are still issues associated with base-level generation, the adjustment method, DRS, and alternatives to the existing measurement system. These issues are briefly described below. More detailed information on issues and solutions for the adjustment method, DRS, and alternatives to the existing system are found in later chapters.

Base Levels

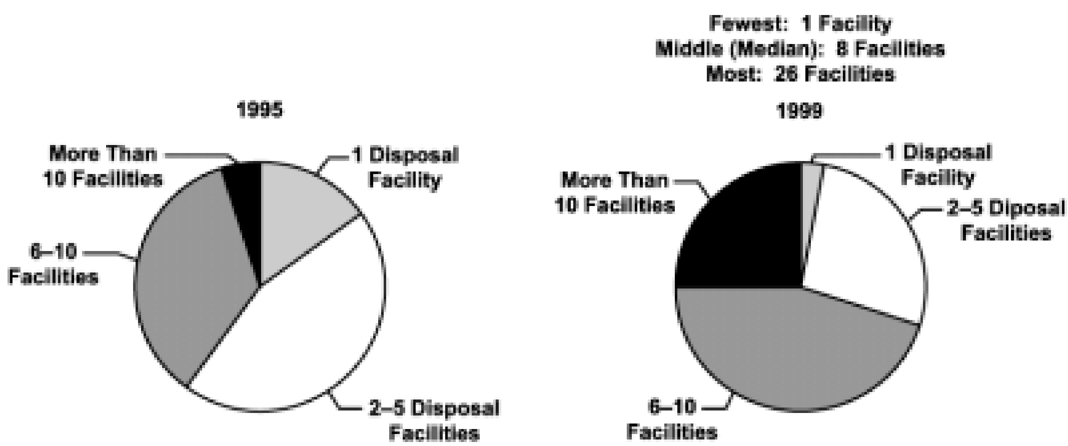
Base-level generation is the starting point of the disposal-based diversion rate measurement system. For most jurisdictions, base-level generation (diversion tons + disposal tons) was established in its 1990 source reduction and recycling element (SRRE) and approved by the Board. The base level is the foundation for diversion rate estimation and plays a crucial role in the accuracy of a jurisdiction's diversion rate estimate. A new base level (DRS tons + diversion tons) provides the opportunity to compile the "best available information" to establish a new base rate of solid waste generation from which jurisdiction achievement of the 50 percent diversion mandate may be accurately estimated.

The disposal-based measurement system calculates a diversion rate by applying the adjustment method to base-level generation. Large errors that understate or overstate base-level generation can result in inaccurate diversion rates. Thus, inaccuracies in base-level data can have a significant adverse impact on the estimated diversion rate. Therefore, base-level inaccuracies could negatively impact jurisdictions' ability to quantitatively demonstrate their actual progress toward achieving the 50 percent diversion goals.

Base Level Issues

Many assumptions about California's waste stream that were used in establishing the original base levels are not supported by current data. Waste flow patterns within counties and between counties, variation in tons disposed, and the amount of both commercial and residential waste delivered by "self-haulers" are much more variable and complex than originally assumed in 1990 (see Figure 2-11).

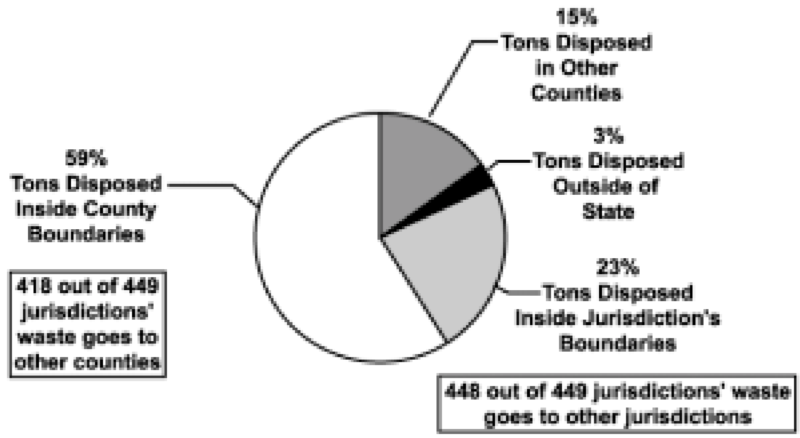
Figure 2-11. Number of disposal facilities used by jurisdictions (1995–99).



Since 1994, cities, counties, and regional agencies (jurisdictions) expressed concern regarding the accuracy of original base-level data. As jurisdictions began to compare their original base-level data against more current disposal records, discrepancies became evident. The Board conducted a survey of jurisdictions that determined there was significant concern by jurisdictions throughout the state regarding their base-level data accuracy.

Prior to 1995, no system was in place for measuring waste disposal at the jurisdiction level. Instead, only state requirements existed for tracking quarterly disposal tonnage at the landfill level, which usually represented waste disposed from multiple jurisdictions. As a result, many inaccurate assumptions were made in base-level waste generation studies to allocate tonnage down to the jurisdiction-specific level. For example, many counties used population ratios to allocate countywide tonnage. DRS data now shows there is significant waste flow between counties (see Figure 2-12), and areas that are primarily commercial and industrial produce considerably more waste than residential areas.

Figure 2-12. Jurisdiction disposal destinations in 1999.



Additionally, about half the landfills were not equipped with scales prior to 1995; therefore, base-level disposal tonnage had to be estimated. Methods to estimate the disposal tonnage included visual estimations, estimates based on aerial photos, the use of published volume-to-weight conversion factors, or actual measured volume-to-weight conversion factors.

Further, many jurisdictions relied primarily on franchised hauler data to determine their base-level disposal data, and omitted or understated self-haul or non-licensed hauler tonnage. The Board's 1999 Statewide Waste Characterization Study shows that, on average, self-haul—including loads from roofers, remodelers and others—is about 13 percent of the waste stream. In some areas the percentage is much higher. In addition, the Legislature was debating whether certain materials (inerts, agricultural waste, scrap metals, and white goods) should count as diversion. Many jurisdictions did not include them in their generation studies. Thus, although based on the best available data in 1990, original base-level data included inaccuracies due to estimation errors, misallocations of regional tonnage to individual jurisdictions, and/or omissions of significant portions of the non-franchised waste stream.

In 1996 the Board established a working group to identify the extent of the problems and solutions to base-level issues. In 1997 the Board adopted a menu of solutions to correct base-level problems. In 2000 the Board modified the solutions to require corrections to base levels within three years because of concerns with older base levels. To provide further assistance, in 2001 the Board convened a working group and adopted a diversion study guide to assist jurisdictions in preparing new generation studies. This guide is available on the Board's Web site.

Adjustment Method

The IWMA required the Board to establish a standard methodology, the adjustment method, to estimate jurisdiction waste generation (disposal + diversion) and avoid measuring diversion after the base level was established. The method was intended to prevent jurisdictions from being penalized by population and economic change that is closely correlated with waste generation. If a jurisdiction's population increases significantly and the economy is booming, waste generation is expected to increase.

In 1993, the Board created a working group to examine factors related to waste generation and to develop the adjustment method. After extensive research, public comments, and field testing, the working group recommended population, employment, and inflation-adjusted taxable sales as the adjustment method factors, and the group recommended disposal deductions for disaster wastes.

The adjustment method is low cost for jurisdictions because it uses readily available factors from other State agencies, and the formula is relatively simple. The Board approved these factors in 1995, and on January 9, 1996, adopted the method. This is the first method of this type that was used for diversion rate measurement in the United States.

Adjustment Method Issues

The following issues are related to the adjustment method:

- Whether weighting of adjustment method factors is appropriate and whether the change in factors is outside the range of change determined to be accurate when tested in 1995.
- Impact on small jurisdictions or jurisdictions at high and low ends of the scale for the factors; for example, very low population growth rate and very high population growth rate.
- Heavy reliance on an accurate base-level generation amount. The adjustment method may be less accurate for jurisdictions with base-level generation accuracy issues.
- Use of factors published by State agencies. These measurements are more accurate for larger geographic areas; however, some issues for jurisdictions may be distinctly different from the larger geographic area. In particular, there are issues for jurisdictions with low population and a high level of commercial and industrial waste.
- Does not account for changes in waste generation due to military base closure or major change in the nature of the production of solid waste (for example, change from manufacturing heavy machinery to assembly of computers) that are related to accuracy of the base-level generation.

The adjustment method standardizes data sources, the formula, and reports for diversion rate measurement at a low cost. A key objective will be increasing confidence in the adjustment method while maintaining its ease of use, flexibility, and low cost. A more detailed discussion of adjustment method issues and potential solutions is included in the adjustment method chapter.

Disposal Reporting

The change to disposal-based measurement of diversion rates in 1993 (AB 2494), required the Board to develop a system to estimate tons disposed by all waste generators in each jurisdiction. This was the first system in California to assign a jurisdiction of origin to all waste in Board-permitted waste facilities based on periodic surveys of the jurisdiction of waste origin at Board-permitted landfills, transfer stations, and waste-to-energy facilities. The DRS regulations establish minimum reporting requirements but allow flexibility at the local level to customize data collection to local needs. Jurisdictions are allowed, under their own authority, to develop standards that exceed the minimum requirements.

Disposal Reporting Issues

The most important use of DRS annual disposal tonnage data is in calculating the diversion rate of a city, unincorporated county, or regional agency. DRS data has many other uses, such as analysis of statewide and regional disposal trends, tons exported out of state, and tracking use of alternative daily cover at landfills. Since the DRS was implemented in 1995, many jurisdictions have worked to improve accuracy of the system and data. The most complicated issue arises when jurisdictions do not agree with the amount of waste allocated to them by a landfill and adjust their disposal amounts in their annual reports. Resolution of these differences may be very complex and may require cooperation among jurisdictions, counties, haulers, materials recovery facilities (MRFs), transfer stations, and landfills. Improvements usually require more than the minimum standard, and they are not uniform statewide.

DRS issues that influence accuracy include the following:

- Reporting/allocation of waste to jurisdiction of origin.
- Issues with attributing self-haul waste to the correct jurisdiction.
- Reliance on waste hauling company drivers for information on jurisdiction of origin.
- Frequency of origin surveys (every load, every day of the year vs. every load every day of a standard one week per quarter).
- Consistency of counting inert material and special waste as disposal.
- Lack of scales at some facilities.
- Lack of standardized volume-to-weight conversion factors in lieu of scales.
- Waste export to out-of-state disposal facilities, including tribal land.
- Difficulty in resolving inaccuracies due to misinformation, untimely information, and minimum information collected.

Questions regarding wastes included in disposal have arisen since the original 1990 base-level year. Self-haul waste (delivered from someone whose primary business is not hauling waste) was often not included in base-level generation, but it is now included in the DRS. Jurisdictions may or may not have included special waste going to Class II landfills (as defined by the regional water quality control boards), construction and demolition debris, and/or inert waste in their planning documents or base-level year calculations. Not including these waste types in base-level generation—but including them in DRS reports—can cause significant drops in diversion rates. A more detailed discussion of disposal reporting issues and potential solutions is included in the disposal reporting chapter.

Alternatives to the Existing Diversion Rate Measurement System

A wide range of alternatives were intensely debated during development of both the generation-based diversion rate measurement system established by IWMA, 1989, and the disposal-based measurement system established by AB 2494. Alternatives are also included in this review of the existing diversion rate measurement system.

All of the alternatives considered address issues with the existing system, ranging from activities that support an increase in diversion to specific changes in the law to overcome accuracy issues. Some of the larger issues addressed include:

- The right balance between measuring diversion progress and diversion program implementation.
- Creating markets for recycled materials so diversion programs can succeed.
- Appropriate measures of success for small and rural jurisdictions that have a disproportionate share of errors.
- Whether changing the diversion rate measurement level from each city and county to countywide or regionwide would improve diversion rate measurement accuracy.

Chapter 3 Recommendations

Introduction

As California's diversion rate measurement system has been implemented over the years, all groups involved have identified issues that affect the system's accuracy. The system is used to assess jurisdictions' achievement of the 50 percent waste diversion goal. Therefore, its accuracy is a critical component in determining compliance with the requirements of the California Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989,as amended [IWMA]). To begin the systematic identification and discussion of these issues and their potential solutions, the Board held public workshops in January 2001. The issues raised at these meetings reflect what the affected parties have learned over the years. These items ranged from increasing accuracy by collecting information more frequently at disposal facilities to developing a completely new measurement system.

Three working groups were formed to look at the issues and potential solutions in more depth. For all of the ideas raised, Board staff and the working groups developed background information, performed analyses, and discussed them in detail to develop recommendations to improve the goal measurement system. These recommendations were then further discussed by a synthesis group made up of members from each working group. From all the recommendations proposed by the three groups, the synthesis group identified the set that they believe will be the most effective in addressing accuracy issues. Taken as a whole, these recommendations will significantly improve accuracy and support further diversion efforts. The group felt that each of the recommendations had equal importance in improving accuracy in all aspects of the measurement system. The order they appear below does not reflect any order of priority or importance.

Synthesis Group Recommendations—Broad Themes

As the synthesis group discussed the ideas from each of the three working groups, several broad themes emerged. The broad themes were used to group and combine ideas. Although each working group was assigned a specific area, some larger issues crossed the boundaries of these areas and were addressed by two or all three of the working groups. Because a recommendation may resolve several issues, there is some repetition in the discussion. The broad themes are:

- Increase accuracy of the diversion rate measurement system.
- Establish alternatives to numerical compliance.
- Expand responsibility for diversion beyond jurisdictions alone and enhance their control.
- Develop markets for secondary materials.
- Change what counts as disposal and diversion.
- Expand waste measurement and IWMA implementation training.
- Alternatives that merit further research.

Board Recommendations

This chapter includes both working group and Board recommendations. The working group process allows the Board to obtain expertise from a variety of stakeholders and an independent review from Board staff. The Board agrees that activities supporting successful diversion are critical to achieving and maintaining 50 percent diversion.

The Board agrees with most of the synthesis group recommendations that related to improving the diversion rate measurement system. Where the Board agrees with the synthesis group recommendation, it is noted in the text and in the recommendations table at the end of this chapter. Where the activity does not directly improve the diversion rate measurement system, the Board has noted this in the text and recommendations table. Where the Board does not agree with the synthesis group recommendation, the Board so states by taking no position. The Board's reasoning for non-support of these recommendations is briefly explained in the text and in the recommendations table.

Specific Recommendations from the Synthesis Group

Accuracy of the Diversion Rate Measurement System

The accuracy of the goal measurement system for a particular jurisdiction is affected by three main parts: the jurisdiction's base-level waste generation study, which established its waste generation amount in 1990; the disposal reporting system, which measures the tonnage of disposed waste originating in the jurisdiction; and the adjustment method, which estimates the change in waste generation over time due to changes in demographic and economic factors. The Board recently adopted guidance for jurisdictions on establishing new base-level generation.

Accuracy of disposal reporting depends on two things: determination of waste amounts delivered to disposal facilities and transfer stations, and assignment of the waste to the correct jurisdiction of origin. Some disposal facilities in rural areas do not have scales to weigh loads of waste. Some facilities do not weigh small self-haul loads. Some waste types, like special waste, may be accurately weighed, but they are counted differently for disposal at different facilities. For correct allocation of waste to jurisdictions, accurate waste origin information must be collected at the disposal facility and correctly reported. Since this information is collected one week per quarter and extrapolated to the entire quarter, anomalies that occur during the survey week can affect the accuracy of the information for that quarter and consequently for the entire year.

Accuracy of the adjustment method is affected by whether the factors used are accurate for each jurisdiction, whether the changes in these factors truly estimate the changes in waste generation in the jurisdiction, and whether the adjustment method formula correctly weights these factors.

DRS issues addressed: The working groups discussed many issues concerning the accuracy of the disposal data collected and reported in the DRS. The working groups concluded that because of the complexity of the DRS, disposal data collection accuracy could be improved; however, the DRS would provide an estimate, not an absolute value. The major issues were allocation of waste among jurisdictions, self-haul waste data collection and extrapolation, and special waste. Currently, regulations specify minimum standards for collecting waste origin information to allow for local flexibility.

When disposal facilities lack scales for measuring tonnage, they measure the volume of the waste load and must then use conversion factors to change volume to weight. However, volume-to-weight conversion factors used throughout the state are inconsistent. Because of this variation in conversion factors among facilities, there is inconsistency in allocating waste amounts to jurisdictions.

Waste may be misallocated among jurisdictions with similar names, such as Los Altos and Los Altos Hills. Another example is misallocation that occurs because the hauler or landfill staff is unable to determine whether a load of waste is from within the city limits or the unincorporated areas of the county. It is difficult to collect data from many self-haul customers.

Some facilities charge different fees depending on the jurisdiction of origin or only accept waste from certain jurisdictions, thereby creating an economic incentive for some haulers to misreport waste origin. In other words, a hauler may misreport the jurisdiction of origin in order to avoid paying a higher fee or having to take the waste to a different disposal facility.

Major waste generating events occurring during waste origin survey weeks can skew disposal figures. If the waste disposed by a jurisdiction is higher than usual during the survey week, the extrapolated disposal tonnage for the quarter will be too high and may adversely affect the jurisdiction's diversion rate. The effect of waste generating events on the extrapolated disposal amounts is particularly pronounced for small jurisdictions.

Similar disposed waste is treated differently at different facilities, causing inequity. Some waste types are counted as disposal at certain facilities but not at others, depending on variations in regional water quality control boards, local agency requirements, location, and permit status of the disposal facility. Additionally, alternative daily cover (ADC) is overused at some facilities.

DRS recommendations: The Board should conduct increased county or regional audits of facility disposal records. Audits of facility disposal records would allow Board staff to verify information and work with the facility operator to correct any reporting errors. The Board supports this recommendation.

Update Local Enforcement Agency (LEA) Alternative Daily Cover (ADC) Advisory #48 to establish performance standards using industry standards and current law. The use of industry standards may prevent future ADC overuse and misreporting by facilities. The Board supports this recommendation and is working with all interested parties to resolve ADC issues..

Creating statewide standards for data collection and reporting will increase the accuracy of statewide disposal data. The Board should require daily waste origin surveys and weighing of all loads except cars and pickups. Jurisdictions that currently require daily surveys instead of the one-week minimum survey period have more accurate disposal tonnage. Daily surveys of every load help to prevent the skewed disposal numbers that are common when extrapolating data based on a single survey week per quarter. Weighing every load, with the exception of cars and pickups, will result in greater accuracy than relying on non-standardized volume-to-weight conversion factors. Also, the Board should require standards for collecting origin and disposal tonnage information from waste hauler dispatch or billing records. The Board supports these recommendations.

The Board should exempt small rural facilities from daily survey requirements. Rural counties contribute a small percentage of the state's disposed waste stream, and they typically have limited resources. Requiring daily surveys of the rural facilities would create a burden on their resources while contributing very little toward increasing the accuracy of the overall statewide DRS. The Board supports this recommendation.

The Board should require scales at all facilities whose daily waste intake is above a certain tonnage. Weighing the waste disposed at landfills—rather than using non-standardized volume-to-weight conversion factors—will improve accuracy, particularly at those facilities that take in significant amounts of waste. The Board supports this recommendation.

The Board should resolve the issue of treating similar disposed waste differently at different facilities. If various special waste types were treated in the same manner throughout the state, there would be greater equity among jurisdictions that dispose of the waste types (see further discussion and different Board recommendation under the "Change What Counts" section below).

Adjustment method issues addressed: Since it is not feasible to determine a jurisdiction's actual diversion rate, it has to be estimated carefully. Starting with a jurisdiction's base level generation amount—and applying the Board's adjustment method to estimate a measurement year generation amount—measurement year generation is compared with disposal to estimate a diversion rate. Although the adjustment method formula uses ten values with different accuracy levels, it works reasonably well for most jurisdictions. In addition, an old base-level generation value may no longer be a good benchmark for estimating measurement year generation. Appropriate use of this estimate requires information about how accurate the estimate might be.

Adjustment method recommendations: While no fundamental change of the Board's adjustment method is recommended, its intended flexibility should be more widely understood and accepted. Estimated diversion rates should be consistently characterized as estimates, and they should always be coupled with diversion program implementation information. Because two of ten formula values are population estimates, the impact of the 2000 Census should be carefully monitored. The Board supports these recommendations.

Since there are different legitimate methods for measuring employment, state employment estimates by "place of work" or "place of residence" should be used as standard or default adjustment method formula values. In addition, similar employment measures from federal, jurisdiction, and private sector sources that comply with existing regulations should be embraced as alternative source adjustment method formula values. The Board supports this recommendation.

Two other alternative source employment measures should be considered because they are consistent with IWMA intent, but they would require regulation revisions before use in the adjustment method:

- Increase flexibility of the formula to use both state "place of residence" and "place of work" employment measured at county level.
- Allow use of state "place of work" employment measured at city level under certain circumstances.

The primary beneficiaries of using different employment measurement methods or sources would be jurisdictions with low population for whom the adjustment method has not worked well. The Board supports these recommendations.

The Board has an additional recommendation that the synthesis group does not support. The relevance of base-level generation to current generation plays a pivotal role in diversion rate estimate accuracy. The Board recommends that jurisdictions be asked to explain in annual reports why their base-level generation is still a representative basis for estimating current waste generation. Jurisdictions with growth rates beyond those tested for the adjustment method (14 percent) would be asked to explain. Jurisdiction growth rates are shown on the Board's Diversion Rate Measurement Calculation web page. Addressing this concern in annual reports should result in more accurate base levels. Additional guidance and tools will be needed to assist jurisdictions to review base level generation.

Regional incentives issues addressed: Due to the diverse conditions in climate, population, urbanization, economic and other factors, as well as local waste management systems, California's waste stream is complex and can be difficult to measure accurately at various locations under different conditions. In some areas it can be especially difficult to track waste origin to within specific city or unincorporated county areas.

Regional incentives recommendations: The Board should increase incentives and remove disincentives for jurisdictions to form regional agencies (RA). Jurisdictions are allowed to work together by forming a regional agency to measure and report diversion and disposal numbers as one entity instead of by individual jurisdiction. Analyses conducted for this report showed that all components of the diversion rate measurement system tend to be more accurate at the regional level than the individual jurisdiction level. RAs will have increased accuracy and save time, effort, and resources spent on measuring and reporting by individual jurisdictions. RAs can also take advantage of economies of scale to reduce costs of implementing diversion programs. Specific incentives to be considered could include: allowing diversion rates less than 50 percent for RAs; waiving penalties for member jurisdictions that fully implement their approved source reduction and recycling element programs; reducing potential maximum fines; new grants or loans specifically for RAs; and preferences to RAs for existing Board grants and loans. The Board supports this recommendation.

Alternatives To Numerical Compliance

The IWMA set specific goals for jurisdictions to reduce and divert waste. It is important to measure progress in meeting those goals. However, collecting data on the waste stream can require significant resources, especially for jurisdictions with measurement problems. The Board's method of determining compliance with the IWMA includes both assessment of the diversion rate and determination of whether adequate diversion programs have been implemented. Many jurisdictions are concerned that there is too much emphasis on the numerical achievement of a diversion rate, especially when the measurement system has the potential to significantly under- or overestimate the rate. This emphasis causes jurisdictions to expend significant resources on tracking numbers, addressing measurement errors which may be difficult to resolve, or on documenting diversion amounts for new base-level studies. If the Board established acceptable alternatives to demonstrating compliance with the IWMA apart from diversion rates, jurisdictions could focus resources more on program implementation than on addressing measurement errors.

DRS and adjustment method issues addressed: Many factors introduce error in measurement year disposal amounts. Small jurisdictions are vulnerable to significant error if the amount is extrapolated from one-week per quarter surveys. All jurisdictions are subject to error when drivers do not know the jurisdiction of origin or when they give misinformation to a disposal facility that limits waste disposal to certain jurisdictions. While the number of disposal facilities without scales has substantially declined since 1990, problems persist with inconsistent volume-to-weight conversion factors used for self-haul vehicles.

The DRS working group was concerned with the time and expense spent on resolving and correcting misallocated disposal tonnage. The group felt that resources might be better spent on diversion programs.

Although accurate base level generation and measurement year disposal amounts are crucial to estimating measurement year diversion, the diverse and dynamic nature of California jurisdictions introduces additional challenges. For the same reason that a new population census is conducted every ten years, even if a base-level generation amount is reasonably accurate when first determined, over time it loses relevance as a benchmark for estimating future year generation.

Disposal reporting system and adjustment method recommendations: The working group believes that more emphasis should be placed on diversion programs than on disposal tonnage and diversion rates. The group feels that the Board should recognize that there is the potential for significant errors in the DRS. The DRS amount is an estimate of a jurisdiction's disposal, and therefore the numbers should be used solely as an indicator—rather than as an exact measurement—of a jurisdiction's progress towards meeting their diversion goal. The Board should look at diversion rates as an indicator, and focus on diversion program implementation and good faith efforts. The Board supports this recommendation.

To help decision-makers appropriately weight an estimated diversion rate in comparison to diversion program information, a standardized accuracy indicators table should be part of each annual report to the Board and each biennial review. It could include indicators such as:

- Base-level generation age.
- Jurisdiction size.
- Jurisdiction growth rate.
- Jurisdiction growth rate balance.
- Base-level residential generation percentage.
- Jobs-to-population ratio.
- Significant change in the nature of the production of solid waste.
- Large visitor influx.
- Large construction projects.
- Drastic change in a measurement year adjustment method factor.
- Waste origin survey frequency.
- Waste flow variability.
- Scale usage.
- Complex jurisdiction boundaries.
- City and county share same name.
- Major one-time disposal events.
- Lack of cooperation between transfer stations and landfills.

The agenda item for each jurisdiction would have similar information, and the Board would have more data to make appropriate biennial review decisions. The Board supports this recommendation.

Rural and regional issues addressed: The goal measurement system tends to be less accurate for rural jurisdictions because of the typically small size and dispersed nature of the waste stream in rural areas. Rural jurisdictions are defined in statute (PRC, sections 41083, 41084, 41787.1). Also, the small amounts of waste involved perhaps do not merit the extra effort that may be needed on the part of both local and State solid waste staff to address errors. Errors in measuring disposal and in calculating a diversion rate can be especially detrimental to rural jurisdictions because of limited resources available to address measurement problems. These limited resources should be focused on programs rather than on measurement.

Rural and regional issues recommendations: The working group recommends that the Board, through its discretion in determining "good faith efforts," should emphasize a policy of assessment of program implementation rather than diversion rates as the basis for demonstrating compliance with the IWMA. This would lessen the need for rural jurisdictions to use scarce resources for improving accuracy of goal measurement calculations. Rural jurisdictions should use their available local resources for the expansion of waste diversion programs and public outreach efforts.

The Board recommends changing regulation or statute to address issues of numerical accuracy for rural jurisdictions up front, rather than relying on "good faith efforts" at the end of the biennial review process. Even if a rural jurisdiction fixes errors, they are likely to experience similar errors in the future simply because each ton impacts a small jurisdiction much more than a large jurisdiction. For example, a 100-ton error has a larger impact on a small jurisdiction that disposes 1,000 tons than it does on a large jurisdiction that disposes 100,000 tons.

To take advantage of greater accuracy of regional measurement, allow jurisdictions to use the countywide diversion rate without forming an RA. For this option, the Board would first verify program implementation at the jurisdictional level. If all jurisdictions within the county are implementing programs, and all jurisdictions agree to be counted together, then they may use the countywide diversion rate. The Board supports this recommendation.

Expand Responsibility and Enhance Control

Current responsibility for meeting waste reduction goals falls on local governments only, but they do not have control over all waste generated within their borders. More diversion could be achieved by moving responsibility for reducing waste "upstream" on those that may have more control or impact on waste generation. Widening the circle of responsibility for meeting the intent of the IWMA would help jurisdictions meet the diversion goals. Waste generators may comply with local recycling programs, but they aren't individually responsible for meeting goals. The working group members assert that local governments currently bear a disproportionate share of the waste diversion burden, and when a larger group shares the responsibility for solid waste, the resource requirements for all parties involved is more equitable.

DRS issues addressed: The working group saw the need for more shared responsibility among the entities involved in the DRS and more control for local governments. For example, counties are responsible for reporting quarterly disposal information to the Board by due dates specified in the regulations, but they are unable to control misinformation or untimely information from haulers and disposal facilities. Under the current system, there are no penalties for misinformation or untimely information, so these problems persist.

Jurisdictions sometimes find it difficult to get necessary information from private solid waste facilities. Furthermore, it is costly and time consuming to verify facility disposal information for which jurisdictions are ultimately responsible in their annual reports to the Board.

DRS Recommendations: Stricter standards and enforcement for the DRS are necessary to provide more control to jurisdictions. The recommended minimum standards and enforcement options would increase the accountability of haulers and disposal facilities for the quality of disposal information they provide. These changes in reporting would enable jurisdictions to investigate and correct any information they believe is inaccurate in a more timely manner. The Board supports this recommendation.

The Board should draft a model ordinance and recommend local jurisdictions pass ordinances to regulate haulers to implement reporting procedures. The ordinances would enable jurisdictions, under their own authority, to require commercial self-haulers to report origin information. Local ordinances would address individual local needs and would be enforceable. The Board takes no position on this recommendation.

DRS regulations should be revised to make solid waste facility cooperation with DRS origin surveys a requirement of the solid waste facility permit. The Board would provide enforcement authority. The Board supports this recommendation.

The Board should require landfill and transfer station operators to send jurisdictions a copy of the disposal information at the same time they send it to the county agency, so jurisdictions can resolve any allocation issues as quickly as possible. Operators should also be required to notify affected jurisdictions of any changes to the tonnages at the same time they notify the county agency. The Board supports this recommendation.

The law should be changed to allow the assessment of penalties to obtain accurate data and other information and to enforce timeliness of reporting information by haulers and solid waste disposal facilities. The law should also establish due process procedures to address errors in DRS. The Board supports this recommendation.

Program responsibility issues addressed: Four areas were identified for specific actions: large waste generators such as large businesses, institutional barriers to diversion programs, self-haul waste, and schools.

Many jurisdictions that have met and exceeded the goals of the IWMA could not have done so without the cooperation of local businesses and manufacturers; however, members of the synthesis group believe more effort is needed on the part of businesses and manufacturers to carry their share of the solid waste burden.

Jurisdictions, facilities, and entrepreneurs have run across barriers to establishing new diversion opportunities due to State policies or institutional requirements. For example, determining permitting requirements of various agencies may delay the startup of facilities needed for diversion programs, even as jurisdictions are under pressure to meet diversion requirements. Or, new diversion technologies may not receive needed support from key State agencies.

Those whose primary business is not waste hauling, such as homeowners, roofers, landscapers, construction companies, and many other types of generators dispose self-haul waste. Self-haul can make up a significant portion of a jurisdiction's waste. Since the waste generator takes self-haul waste directly to disposal sites, it may not be easily captured or addressed by local diversion programs. Disposal facilities themselves may be in the best position to divert materials from this waste stream.

Waste generators may comply with local recycling programs, but they aren't individually responsible for meeting waste reduction goals. In many cities and counties, schools are significant generators. Statewide, all education services contribute about two percent of the disposed waste stream. Schools are exempt from using franchised waste haulers that often provide recycling services to a community. They are free to contract with any waste hauler or recycling service provider and may choose not to recycle because of added costs.

Program responsibility recommendations: Although the Board currently provides diversion program assistance to local governments, it should further promote the focus on largest individual generators, largest sectors, and most common materials to reduce waste and recycle. This approach has been used by several jurisdictions and has been successful in increasing diversion rates. The Board supports this recommendation.

The Board should review its internal policies, particularly those involved with the permitting of new diversion facilities, to ensure they are consistent with the goals and mission of the Board. The Board should also investigate other institutional barriers, especially those at the state level, that inadvertently hinder the development of diversion opportunities. Regulations pertaining to the transfer and processing of construction, demolition, and inert debris are currently in process and will be released for public comment in the next few months, therefore the Board has an immediate opportunity to modify regulations as needed to address this alternative. The Board takes no position on this recommendation. The Board must carefully consider specific types of facilities as new regulations and policies are developed, in order to balance the advantages of streamlining with protecting the health and safety of Californians and the environment. Disposal facilities themselves may be in the best position to divert materials from this waste stream, and they should be required to divert 50 percent of self-haul waste that enters the facility. The Board takes no position on this recommendation.

New laws should be passed to require schools to work with local government recycling coordinators to divert waste. More diversion of waste could be accomplished by placing more responsibility on schools to more actively share responsibility with local governments for meeting diversion goals. Requiring schools to run their own diversion programs could increase opportunities for solid waste and environmental education. The Board takes no position on this recommendation; current law encourages cooperation.

Markets

Jurisdictions and their solid waste haulers are charged with collecting and separating useful materials from the waste stream, but they may not have any avenue to sell those materials, or they may be forced to sell those materials for less than the costs of collection.

Efforts by the State to encourage, stabilize, or speed the growth of markets to purchase collected commodities offer the potential to greatly improve the cost/benefit characteristics of solid waste diversion programs. Stable markets and higher prices will allow jurisdictions to implement more programs and to recover more materials from the waste stream as their value increases enough to merit further diversion efforts.

For some jurisdictions, collecting these marginal-value materials can make the difference between attaining or failing to attain the 50 percent goal. Recycled commodity prices critically impact small jurisdictions, which may have more difficulty funding solid waste diversion programs, as well as those jurisdictions which are geographically far from existing markets and therefore incur significant transport costs. As one stakeholder succinctly put it, “Without markets, diversion programs fall apart.”

Markets issues addressed: The Board operates the Recycled Market Development Zone (RMDZ) loan program, as well as other loan and grant programs (for example, to encourage the manufacture of crumb rubber from old tires). The Board enforces minimum recycled content in several types of products, including newsprint, fiberglass insulation, trash bags, and rigid plastic containers. The Board purchases recycled products for its own operational needs and coordinates campaigns encouraging others in the public and private sectors to do the same.

Despite these efforts, markets for recycled materials continue to be volatile, and low prices for certain materials undermine recycling efforts. Stakeholders believe the Board, as an entity with statewide influence, should do more to develop stable markets for those materials being removed from the waste stream.

Markets recommendations: The working group recommends the following specific steps be taken; the Board takes no position on these recommendations, however, the Board believes many of these recommendations are currently being addressed through various Board programs, projects, and State initiatives (see Table of Recommendations and Chapter 6).

- Expand the list of materials for which minimum recycled content is required.
- Mandate the purchase by government agencies of products made from recycled materials.
- Leverage existing programs with funds from the federal government and private foundations.
- Quantify the impacts of the Board’s market development efforts (much the same way that jurisdictions must now quantify their waste diversion efforts).
- Expand and improve the RMDZ program as follows:

- Expand RMDZ loan program eligibility to include sustainable business practices, including energy conservation, sustainable energy generation, and water conservation.
- Provide RMDZ businesses with a State tax credit for the full value of the capital investment in sustainable recycling, energy conservation, sustainable energy generation, or water conservation.
- Create a secondary market for RMDZ loans by implementing the recommendations of the report "Creating a Secondary Market for Community and Economic Development Loans: a Feasibility Study" prepared for the California State Legislature pursuant to Chapter 923, Statutes of 1997 (Bustamante, AB 1219).
- Clarify RMDZ revolving loan program, including:
    - Authorization to assist startup businesses through credit enhancements, including financial assurances and interest write-downs, and equity participation through the RMDZ revolving loan program.
    - Clear authority for Board loan sales, if needed.
    - Sunset extension, coterminous with zone re-designation and new zone designation.

The synthesis group recommends the Board prepare an updated Market Development Plan, considering the expanded sustainable program eligibility and secondary market financing resources. The Board recently adopted its new Strategic Plan which includes strong recommendations relating to sustainability and increased markets for recyclables.

Change What Counts As Disposal

Most materials disposed at permitted disposal facilities are counted in the DRS as "disposal" and are used to determine disposal amounts for the goal measurement system. However, some materials have special status because of their characteristics (often called "special waste"), and they are handled and counted differently depending on local circumstances.

Jurisdictions that send materials to the three Board-permitted transformation facilities (all three of which are incineration facilities) may count that material as diversion, but only up to a limited amount (10 percent of their total waste generation amount). Some jurisdictions, especially in forested rural areas, may send materials to biomass conversion facilities, which are non-Board-permitted facilities that generate power through controlled combustion. Feedstocks for these facilities may include agricultural residue as well as forest debris. Since these facilities do not fall under the DRS, materials they burn are not counted as disposal. These materials may not be counted as diversion, which has an impact if jurisdictions perform a comprehensive base-level generation study in which they must account for all their waste streams.

DRS issues addressed: In the current DRS, some waste types are counted as disposal at certain disposal facilities, but they are not counted at other facilities depending on variations in regional water quality control boards, local requirements, location, and permit status of the facilities. The inequitable treatment of waste types in reporting years is particularly problematic for jurisdictions that did not include the waste types in their base-level generation amounts.

Jurisdictions have limited opportunities for diverting special waste. Further, special waste handling and tracking takes resources away from the implementation of diversion programs.

DRS recommendations: The working group recommends the Board support proposed legislation that will exclude special waste disposed at Class II landfills from counting as disposal in the DRS. The working group also recommends the Board exclude from the DRS inert waste tonnage not subject to the integrated waste management fee and disposed at mine reclamation facilities. Exclusion of special waste types and the inert waste disposed at mine reclamation sites would address issues of inequity. If special waste was to be excluded, then jurisdictions that counted these waste types in their base levels would have to remove the applicable waste amounts. Similarly, jurisdictions whose base levels included inert waste disposed at mine reclamation facilities would have to remove the inert waste tonnage from their base-level generation amount.

However, at the July 2001 Board meeting, the Board voted that inerts at mine reclamation sites would continue to count as disposal. The Board may revisit the issue of inerts at mine reclamation sites in the upcoming construction and demolition regulations. The Board will continue with its existing policy of excluding special waste from disposal if the regional water quality control board, local air district, or other control agency requires the waste be disposed.

Transformation issues addressed: For jurisdictions in forested areas, a significant part of the waste stream may consist of forest debris (slash) from fire control requirements and other sources, which can contain high amounts of woody materials and other materials that are less desirable for composting operations. There may be limited opportunities to divert these materials in rural areas.

Transformation recommendations: The synthesis group recommended removing the ten percent diversion limit for direct-burn transformation processes for forest debris when used for power generation. This recommendation is based on the argument that eliminating the ten percent diversion restriction for these materials would encourage jurisdictions to divert these materials from landfills, would provide fuel for power generation, and would provide an alternative that is cost-effective for many rural jurisdictions. Co-generation facilities are often located near the waste generation source, and the forest debris provides an excellent fuel source that composters do not want. *The Board's recently adopted strategic plan supports, in general, efforts to increase power generation through various activities.*

Training

There are few opportunities for college-level training in waste management. Both State and local government staff assigned to waste management programs and code enforcement need information, libraries, and training in the field of waste management. New local government staff with limited experience would benefit from the opportunity to receive a minimum level of training for IWMA compliance. In the past, several colleges and universities had certificate programs in waste management issues, but few are available currently. The only state-originated program related to waste management is the Registered Environmental Assessor. California's diversion rate measurement system implemented a new comprehensive method for the tracking and measuring of waste, which can be a difficult task in areas with complex waste management systems in place.

Issues addressed: There is widespread lack of knowledge about many aspects of the IWMA at all levels in local government, and by waste haulers and facility operators subject to DRS. The diversion rate measurement system itself is complex. Limited local government travel budgets and employee turnover reduce the effectiveness of Board training unless it is frequent, high quality, and offered in convenient locations. In general, there is insufficient knowledge of DRS requirements at disposal facilities, which contributes to the problems of inaccurate data collected and reported by disposal facilities. Additionally, the DRS working group identified a need at the county level for training and increased access to DRS reports and information. Training is particularly critical at facilities and counties when there is high staff turnover. Also, IWMA compliance by jurisdictions can be hindered by a lack of formal training and education opportunities for local program coordinators, and by lack of professional requirements in resource management issues and strategies. Without a consistent training program, waste managers at many levels are left to develop their own expertise which could be inconsistent and uneven. Overall, the complexity of the system and its requirements, coupled with lack of training of local government staff and other affected parties, can negatively impact the success of diversion programs as well as the appropriate application of the goal measurement system.

Recommendations: More Board training and Web site information on DRS, the adjustment method, and program implementation is needed. The Board should provide DRS training to facility supervisors and county staff. The Board should also increase the number and types of standard DRS reports available on the Board's Web site. Specifically, the group requested reports showing ADC by material type and jurisdiction disposal data by facility. Some topics that should be covered in regular periodic regional workshops and/or in more detail on the Board's Web site include:

- Inherent limits of base-level generation amount, adjustment method formula, and measurement year disposal amount.
- Potentially acceptable alternative source adjustment method factors.
- Suggested study sequence to master disposal reporting and adjustment method principles and practice.
- Economic activity included in the taxable sales adjustment method factor.
- Extent and scope of potential error in Board estimates of fourth quarter taxable sales.

While there will always be some error in the diversion rate measurement system, more training and information dissemination should minimize it. The Board supports this recommendation.

The Board should provide standard curriculum or training for local government staff (especially new recycling coordinators) responsible for program implementation and other IWMA and waste management duties. The State of California and Board could provide the funding and programs for standard curriculum and training, and various levels of certification, for waste managers at all levels: private businesses (that is, large corporations) as well as State and local government staff. The training process could include a Board certification program that would cover minimum standards, program implementation, and other waste management duties. The Board takes no position on this recommendation.

Ideas Merit Further Study

Throughout the working group process, many ideas on improving and changing the system were discussed and either proposed as a recommendation or rejected. A few ideas emerged which have merit, but due to time constraints, they could not be fully analyzed to determine their potential to improve the system. Rather than reject these ideas out of hand, the working group felt they should be further studied.

Adjustment method issues addressed: Existing statistical documentation of adjustment method formula accuracy is based on 1990 through 1993 waste generation data. This gives rise to questions about the formula's ability to accurately estimate jurisdiction waste generation when demographic and economic change between 1990 and 2000 is well beyond that experienced between 1990 and 1993.

Adjustment method recommendations: Continue further analysis of the adjustment method formula, including, but not limited to:

- Factor weighting.
- Long term accuracy.
- Interrelationships between measures of population, employment, taxable sales, and CPI.
- Merits of using State taxable sales deflator rather than CPI.

While additional Board staff and/or contract funding may be required, and while there is no assurance that greater adjustment method accuracy would result without adding complexity to the formula, the cost should be reasonable considering the large number of jurisdictions that would benefit from the added knowledge. The Board supports this recommendation.

Program issues addressed: In providing waste management services, local governments are often left with the burden of dealing with wastes that are difficult to handle, such as cathode ray tubes (CRT) in computers and televisions that have recently been classified as hazardous waste. Providing citizens with proper opportunities to dispose of these wastes means jurisdictions often pay high costs in their handling and disposal.

Because the diversion rate measurement system is complex, significant resources are spent on measuring and tracking waste and calculating diversion rates. Jurisdictions of all sizes could better spend these resources on diversion program implementation and achieve higher diversion overall.

Program recommendations: More responsibility needs to be placed on manufacturers and generators of difficult-to-handle waste. There should be a shared responsibility on the part of all those involved in the generation of waste. The working group would like the Board to further investigate and support programs such as advance disposal fees for other "difficult to dispose" products, including paint, pesticides, mattresses, furniture, and large appliances. The Board supports this recommendation, which is consistent with Goal #1 of the Board's new Strategic Plan. This goal promotes product stewardship and manufacturer responsibility. The Board has already given specific direction for product stewardship policies for paint as well as other products. In addition, the Board is participating in the National Electronic Product Stewardship Initiative (NEPSI).

Jurisdictions should be allowed the option of only reporting on diversion programs, not reporting a diversion rate. From a Board-established menu of diversion programs, jurisdictions would choose programs appropriate for local implementation. Jurisdictions would submit a document describing their diversion programs, which must be certified by the Board as adequate, to be audited and monitored by Board staff. The Board would establish evaluation criteria for diversion programs which the Board would certify as adequate, such as program guidelines, monitoring for effectiveness, and proof of implementation. This would be an alternative way for jurisdictions to demonstrate compliance with the IWMA. It would not affect implementation of the DRS. The Board takes no position on this recommendation.

Transformation issues addressed: The law defines transformation to include both burning (incineration) and non-burn processes such as pyrolysis, distillation, gasification, or biological conversion other than composting; *transformation also* does not include biomass conversion. Regulations limit the amount of transformation that can be claimed by jurisdictions as diversion to ten percent of the jurisdiction's waste stream. This diversion claim is only valid if certain conditions are met, and one of the conditions is that the facility use front-end methods or programs to remove all recyclable materials from the waste stream prior to transformation to the maximum extent feasible. Transformation facilities also must have been permitted and operational prior to 1995 for diversion credit to be obtained. Limiting the amount of diversion allowed through non-burn transformation discourages the development of these facilities and technologies that may be viable alternatives to landfilling for materials that are difficult to divert through other means.

Transformation recommendations: The synthesis group recommended removing the existing ten percent diversion limit for non-burn transformation processes such as gasification, pyrolysis, etc. This recommendation is based on the argument that allowing jurisdictions to take full credit for diversion from new non-burn transformation facilities in new base-level studies would encourage development of innovative non-burn transformation technologies, and it would encourage diversion and energy production through these technologies. This may indirectly assist in promoting alternatives that will ease the energy crisis. Since there is a requirement for front–end recycling, these non-burn transformation methods would deal with materials that are harder to divert and do not compete with markets for recyclables. The Board's recently adopted Strategic Plan supports, in general, efforts to increase power generation through various activities.

Summary

One of the key findings of this review of the diversion rate measurement system is that a diversion rate is an estimate, not an absolute value, and there are potential inaccuracies in each part of the diversion rate measurement system. One difficulty faced by jurisdictions and decision-makers is how to fairly assess the accuracy of a diversion rate estimate, given the many variables and the potential for inaccuracies involved. Stated differently, a key issue is how should an estimated diversion rate be weighted in comparison to diversion program information? Another key issue for jurisdictions and decision makers is the level of resources required to improve accuracy, and the appropriate balance between resources to improve accuracy and resources to implement diversion programs.

The working group and public review processes identified a variety of recommendations for improving accuracy of the diversion rate measurement system. The recommendations in this report could significantly improve the diversion rate measurement system and reduce inaccuracies. Many of the recommended improvements could be implemented by changes in Board policy or regulations revisions; others would require statutory change. The Board recognizes that, as the recommendations may later be incorporated into State regulations or new laws, there may be legal and procedural constraints on the implementation of the recommendations.

Tables of Recommendations

The following tables contain recommendations from the SB 2202 working groups and the Board. The Board agrees activities that support successful diversion are critical to achieving and maintaining 50 percent diversion. However, the Board's recommendations are focused on those activities that improve the diversion rate measurement system.

Members of the synthesis group recommend the Board reconsider the emphasis in implementing existing policy, adopt proposed new policies or regulatory changes, and support statutory changes. Almost all working group members recommend a greater recognition of the limitations of the diversion rate measurement estimation process in general, and an increased emphasis placed on the value of program implementation.

These recommendations are the result of a synthesis group reviewing, combining, and grouping recommendations forwarded by three previous working groups (disposal reporting system [DRS] group, the adjustment method [AM] group, and the alternatives group). Synthesis group members felt that this set of recommendations taken as a whole will increase accuracy in the diversion rate measurement process. Therefore, the synthesis group did not prioritize or order these recommendations, except for placing them in broad categories. These recommendations are grouped with similar ideas; and policy, regulatory, and statutory actions are identified.

The synthesis group identified seven major categories for presenting the recommendations. The synthesis group did not choose to present all the recommendations forwarded by the prior working groups. Complete lists of recommendations from each of the three working groups (DRS, AM, and alternatives) can be found in the technical appendices of this report, available at www.ciwmb.ca.gov/LGLibrary/SB2202Rpt/. The categories and their associated definitions are listed next:

ACC	Accuracy-related issues and recommendations.
ATNC	Alternatives to numerical compliance recommendations.
R & C	Expand responsibility and enhance control recommendations.
Markets (MKT)	Market-related recommendations.
Change What Counts (CWC)	Recommendations that change what counts as disposal.
Training (TRN)	Training related recommendations.
Further Study (FS)	Ideas that have merit, but further study is recommended to determine if the ideas should be pursued

SB2202 Table of Recommendations

Table 3-1. SB2202 Synthesis group recommendations approved by the Board

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
Accuracy (ACC 1)	**Policy**	Recognize there are various sources/types of errors that make the diversion rate estimate an indicator, not an absolute measured diversion rate value.	Diversion rate measurements are based on a number of estimates.	1. No additional cost anticipated. 2. Reaffirms that diversion rates are estimates, not absolute measurements. 3. May prompt added emphasis on diversion program implementation information.	Recommended by Board.
Accuracy (ACC 2)	**Policy**	Board should conduct increased county or regional audits of the facility disposal records.	Obtaining records from disposal facilities to correct accuracy issues is time-consuming and difficult.	1. Jurisdictions have limited time and resources to audit facility records. 2. More efficient to have single Board audit to improve accuracy for all jurisdictions using a disposal facility rather than multiple audits. 3. Facility audits can improve accuracy and provide verifiable results. 4. Enforcement activity allowed under the existing regulations.	1. Recommended by Board. 2. Potential increased cost to the Board, depending on the number and frequency of the audits. 3. Past audits have resolved issues.
Accuracy (ACC 3)	**Policy**	Update Local Enforcement Agency (LEA) Alternative Daily Cover (ADC) Advisory #48, establishing performance standards using industry standards and current law. Shall include input from stakeholders/LEA community.	ADC may be overused or misreported at some landfills.	1. The use of industry standards may ensure consistency in how ADC is used at facilities. 2. Will reduce misreporting. 3. Requirements will reduce chance of overuse of ADC. 4. Increase accuracy.	1. Recommended by Board. 2. Some changes could require regulatory change. 3. Board approval needed for revised advisory.

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
Accuracy (ACC 4)	**Regulation**	Board should require: • Daily surveys and weighing of every load, except loads transported in pickup trucks/cars (pickup trucks are defined as less than one ton). • Exemption of small rural facilities from the daily waste origin survey. • Scales at all solid waste facilities above a certain tonnage per day. • Facilities to post signs about origin collection on site. Language drafted by the State. • Standards for collecting origin and disposal tonnage information, dispatch-based allocation, and cash customer information.	Lack of consistent standards or guidelines for collection of origin data leads to data inaccuracy. Major waste generating events that occur during the survey week skew disposal numbers. Lack of scales and inconsistent standard conversion weight factors for vehicles may cause inaccuracies in waste allocation.	1. Would increase accuracy of the disposal data. 2. Consistent operating practice would also increase accuracy of the data. 3. Increased cost to facility operators/jurisdictions. 4. Rural counties' waste makes up small percentage of the state's waste stream. 5. Rural counties would not have an increased financial burden from daily surveys, and would not be required to buy scales. 6. Exempting pickup trucks and small loads would allow smoother traffic flow at the scale house. 7. Some facilities currently have signs posted, which have proven to be successful in acquiring origin information.	1. Recommended by Board. 2. Requires change in regulation and/or statute. 3. Could be easier to train scale house staff to conduct daily, rather than trying to remember the survey week. 4. If exempting pickup trucks less than one ton is intended to exempt disposal tonnages from DRS, there will be no ability to cross-check the data with Board Of Equalization.
Accuracy (ACC 6)	**Statute**	Increase incentives and remove disincentives for jurisdictions to form regional agencies, such as allow a lower diversion rate or no penalties for individual regional agency members who fully implement their approved SRRE.	California's waste stream is complex and it is very difficult and costly to accurately measure diversion at the jurisdiction level. Waste origin data is more accurate for a larger region. Haulers/drivers do not know or do not have	1. Meets the intent of the IWMA by focusing on regional management and measurement of waste reduction and recycling programs by allowing for the measurement to be taken by region. 2. Encourages regional approaches and results in savings in time and cost for program implementation,	1. Recommended by Board. 2. Requires statutory and/or regulatory change. 3. Additional incentives could include reducing potential maximum fines (currently are $10,000/day per jurisdiction); grants or loans specifically for programs in regional agencies; preference to regional agencies for existing Board grants and loans. 4. Because of the configuration of

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
			incentive to obtain accurate waste origin.	measurement, and reporting. 3. The many existing regional authorities demonstrate the feasibility and practicality of the regional approach. 4. A regional measurement and reporting system would improve accuracy by unifying the reporting procedure under one authority for all jurisdictions in the regional. 5. Regional agencies must meet the mandates of the IWMA.	their waste sheds, some counties may wish to participate in more than one regional agency; but this makes them liable for multiple fines, and this disincentive should be addressed.
Accuracy (ACC 7)	**Policy**	Allow continuing use of the existing adjustment method because it estimates waste generation for majority of jurisdictions.	Does the adjustment method accurately estimate waste generation?	1. Cost-effective. 2. Adequate for most jurisdictions. 3. Consistent year-to-year methodology. 4. Data is accessible. 5. Does not correct for other types of errors in the diversion rate measurement system. 6. Easy to use.	1. Recommended by Board. 2. No additional cost anticipated. No change in adjustment method accuracy. 3. Reaffirms that AM produces an estimate, not an absolute measurement. 4. May prompt added emphasis on diversion program implementation information.
Accuracy (ACC 8)	**Policy**	The Board should continue to use existing default factors in the adjustment method: • Department of Finance (DOF) population. • County level Employment Development Department labor force employment. • Board Of Equalization (BOE) taxable sales.	How accurate are adjustment method default factors?	1. Flexible and easy to use. 2. Cost-effective. 3. Default available for all jurisdictions at county level. 4. Census data is not an issue for 2000 diversion rates. 5. Alternatives show no difference for most jurisdictions and tend to	1. Recommended by Board 2. No additional cost. 3. No regulation changes needed for default or alternative factors that meet regulatory requirements. 4. Future impact of census data on diversion rates unknown. 5. Alternative factors increase jurisdiction flexibility, does not necessarily improve adjustment

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
		(BOE) taxable sales. • Consumer price index. • Add county level EDD industry employment as default factor. • Monitor 2000 Census data publication & investigate potential issues. The Board should allow use of alternative adjustment factors: • U.S. Department of Commerce Bureau of Economic Analysis industry employment. • Third-party private sector employment. • Jurisdiction employment data from business licenses if it meets regulatory requirements of use of same data collection methodology over time.		benefit jurisdictions with low population and large industrial bases that have always had adjustment method accuracy issues.	method accuracy.
Accuracy (ACC 9)	**Regulation**	Consider use of alternative adjustment method factors and formulas that require regulations revisions: • City level EDD industry employment.	How do alternative adjustment method factors compare to existing default factors? Do alternative factors address adjustment method issues for low population and large industrial base?	1. City level EDD data not available for 1990 base-year. 2. Allow use of 1991 data for 1990 base year if city shows 1990–1991 employment trend was increasing. This reduces the diversion rates for jurisdictions using this employment factor. 3. Substantial EDD charge for data. 4. Data is by zip code; zip codes change over time.	1. Recommended by Board. 2. Data acquisition cost for jurisdictions proportional to jurisdiction size. 3. Increases jurisdiction flexibility, does not necessarily improve adjustment method accuracy. 4. Data for a year not available until December of the following year. 5. Will require some additional Board review of data submitted.

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
				5. Zip code may not coincide with jurisdiction boundaries.	
		- -	- - - - - - - - - - - - - - - -	- -	- -
		• EDD labor force employment for residential adjustment calculation, and EDD industry employment for non-residential calculation.		1. Available at low cost. 2. Requires manual diversion rate calculation. 3. Minimal diversion rate impact. 4. Industry employment available for most jurisdictions. 5. Regulations do not automatically allow.	1. Moderate Board cost to change regulations and modify Web site. 2. Minimal to moderate jurisdiction cost. 3. Adds complexity to adjustment. 4. Will require some additional Board review of data submitted.
Accuracy (ACC 10)	**Policy &/or Regulation**	Jurisdictions will be asked to explain why base-level generation is valid when growth rates of adjustment method demographic and/or economic factors are greater than 14 percent.	Due to limitations of the availability of data, the adjustment method formula was originally tested for growth factors (demographic and economic) of no greater than 14 percent. Note that error increases as growth factor percents increase.	1. Not recommended by synthesis group.	1. Recommended by Board. 2. Will require additional Board review of data submitted. 3. May require additional statistical assistance. 4. May reduce compliance order frequency. 5. Should improve accuracy of base-level generation over time if jurisdictions replace obsolete base years.
Alternatives to Numerical Compliance (ATNC 1)	**Policy**	The Board should recognize there is the potential for significant errors in the disposal reporting system and the adjustment method. Focus more emphasis on diversion programs rather than tonnage/diversion rates.	Many factors cause inaccuracies in origin information including, but not limited to: • Significant errors in tonnage estimates with one-week surveys.	1. Board and jurisdictions would focus less time and expense on using the adjustment method and tracking each disposal ton, focusing more on diversion program implementation. 2. Potential errors strongly	1. Recommended by Board. 2. Staff believe the disposal reporting system and adjustment method work reasonably well for most jurisdictions. 3. The Board currently has the ability to consider good faith efforts when jurisdictions are

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
			• Misallocation to jurisdictions with similar names. • Drivers may not know waste origin, or they may give misinformation. • Lack of scales.	supported by data in this report. 3. Low cost.	unable to achieve the goal.
Alternatives to Numerical Compliance (ATNC 2)	**Policy**	Develop tiered approach to evaluating diversion rate accuracy in biennial review. For example: *Level 1:* Diversion rate estimate is acceptable due to lack of special circumstances. *Level 2:* Diversion rate estimate accuracy is somewhat less due to special circumstances. Focus more on programs. *Level 3:* Diversion rate estimate accuracy is questionable due to special circumstances. Focus more on programs. Add standard "red flag" table of circumstances that may decrease accuracy of diversion rate estimate to jurisdiction annual report & Board's biennial review agenda item. *Adjustment Method "red flags:"*	What jurisdiction characteristics affect diversion rate accuracy?	1. Low cost. 2. Addresses limits of data. 3. Not a quantitative measure of error. 4. Provides Board similar information for each jurisdiction. 5. Identifies jurisdictions that might have special circumstances that decrease accuracy. 6. Diversion rate is rough indicator.	1. Recommended by Board. 2. Minimal to moderate Board cost to implement. 3. Moderate jurisdiction cost. 4. Provides jurisdictions and Board more comprehensive data for informed judgments. 5. May prompt more jurisdictions to initiate new base-year studies. 6. May prompt added emphasis on diversion program implementation information. 7. May need Board discussion on implementing tiered approach and "red flag" table of circumstances. 8. No data identified that shows annexations add error to adjustment method estimate. 9. No useful data identified to adjust for jurisdiction rainfall.

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
		• Base-year age. • Jurisdiction size. • Jurisdiction growth rate. • Unbalanced jurisdiction growth. • Extreme high/low base year. • Residential generation %. • Jobs to population ratio. • Significant change in nature of solid waste production. • Diversion rate decline despite same or greater diversion program implementation. • Annexations. • Rainfall. • Large visitor influx. • Large construction projects. • Drastic change in adjustment method factor . *Disposal Reporting System "red flag:"* • Jurisdiction size. • Waste origin survey frequency. • Waste flow variability—seasonal and other. • No scales at landfills. • Complex jurisdiction boundaries. • City and county share same name.			

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
		• Major one-time events. • Lack of cooperation between transfer stations and landfills.			
Alternatives to Numerical Compliance (ATNC 3)	**Policy or Regulation or Statute**	In addition to existing statutory provisions for rural reductions, allow rural jurisdictions to demonstrate IWMA compliance based on local program implementation and effectiveness instead of data and calculations that may contain errors that are difficult to resolve or require a new base-year study.	Inherent difficulties are associated with obtaining accurate waste disposal and diversion rate data for rural counties. Small and rural counties have limited resources to correct inaccuracies through new base year studies and documenting diversion.	1. Meets the intent of the IWMA by focusing on effective program implementation and requiring "good faith performance efforts." "Good faith efforts" are determined at the end of the Board's biennial review process. 2. Waste loadings from rural jurisdictions represent < 5% of state's total waste volume. 3. Board and Board staff could focus on more significant waste streams. 4. Small or rural counties would still need to implement DRS, but the data would be used as an indicator. 5. May need to reconsider the definition of rural to address rural cities in non-rural counties.	1. Board recommends changing regulations or statute rather than relying on "good faith efforts" at the end of the biennial review process. 2. Disposal reporting system and adjustment method system data supports the fact that small jurisdictions have greater errors and will continue to have greater errors. Even if errors are fixed now, mathematically they are likely to experience the same types of errors in the future. 3. Need to determine how jurisdictions would demonstrate program effectiveness, which could mean counting diversion. 4. Larger jurisdictions may see this solution as unfair. 5. Some Board resources would be required to develop methods and/or regulations.
Alternatives to Numerical Compliance (ATNC 4)	**Statute**	Verify program implementation at the jurisdictional level. If all jurisdictions within the county are implementing programs, and all jurisdictions agree to be	Numbers are more accurate at the countywide level. Disposal reporting and base-year inaccuracies within a single county	1. Shifts focus to implementation, without sacrificing accountability or 50% mandate. 2. Shifts limited resources to implementation.	1. Recommended by Board. 2. Requires statutory and regulatory change, unlike regional agencies. 3. No clear enforcement mechanism.

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
		counted together, then they may use the countywide diversion rate.	have larger impact on smaller jurisdictions.	3. Easy to implement, cost-effective. 4. Provides flexibility and local decision-making. 5. Improves accuracy of measurement. 6. Compatible with existing regional agency alternative. 7. Increases accuracy; verifiable.	
Responsi-bility & Control (R&C 2)	**Regulation**	Revise regulations to require that solid waste facility cooperation in DRS waste origin surveys be a requirement of the solid waste facility permit, and require State to provide enforcement authority. Adds an additional tool to assist jurisdictions and the allows the Board to obtain the information they need.	Sometimes it is difficult to get information from solid waste facilities. It is costly and time consuming to verify facility information. There are no penalties for misinformation or untimely information.	1. Adds an additional enforcement tool to improve accuracy. 2. Provides additional review of facility practices.	1. Recommended by Board. 2. Would require regulatory or statutory change. 3. Increased cost to the Board. 4. Increased responsibility for local enforcement agencies. 5. Disposal data more accurate.
Responsi-bility & Control (R&C 3)	**Regulation**	Landfill and transfer station operators shall be required to send jurisdictions a copy of information at the same time they send it to the county and notify affected cities of any changes to the reported numbers at the same time they notify the county.	There is a delay in obtaining information, making disposal verification difficult.	1. Would allow jurisdictions to more quickly verify disposal data and increase accuracy. 2. Increases ability to verify information. 3. Cost-effective for jurisdictions.	1. Recommended by Board. 2. Would require regulatory change. 3. Landfill and transfer station operators may say this is costly and time consuming.
Responsi-bility & Control (R&C 4)	**Statute**	Modify State law to establish and authorize: • Assessment of penalties for misinformation and untimely information. • Due process procedures to address errors in DRS.	Lack of penalties for misinformation and untimely information is a barrier to improving accuracy of the disposal reporting system.	1. The potential for penalties for misinformation and untimely information would increase disposal reporting system accuracy. 2. Adds an additional enforcement tool to	1. Recommended by Board. 2. Requires statutory and/or regulatory change. 3. Potential for significant cost to the Board for enforcement. 4. Could be modified to allow jurisdictions to take enforcement

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
		• Penalties to apply to waste haulers, landfills, materials recovery facilities, and transfer stations. • Board enforcement and assessment of penalties.		improve accuracy.	action as well as the Board.
Responsi-bility & Control (R&C 5)	**Policy**	Further promote the focus on largest individual generators, largest sectors, and most common materials to reduce waste and recycle.	Jurisdictions typically don't have control over all the waste generated within their borders. More diversion could be achieved by moving responsibility for reducing waste "upstream" on those that may have more control or impact on waste generation.	1. Could improve diversion by identifying areas with less existing diversion and the most potential for improvement. 2. Doesn't address current measurement system problems. 3. Could increase costs and resource needs for local governments and the Board, but may result in focusing resources where most needed. 4. CIWMB has tools to assist with this approach, but could perhaps increase direct assistance. 5. Could require statutory changes if new requirements are placed on businesses.	1. Recommended by Board. 2. This approach has been successful in increasing diversion rates for many jurisdictions. 3. Some jurisdictions currently take this approach and could be used as models.
Markets (MKT 1)	**Statute**	Take the following steps to improve markets for recyclable materials: • Focus on developing markets for recycled materials to "pull" materials out of the waste stream, rather than focusing on measurement	Without markets, diversion programs fall apart.	1. Meets the intent of the IWMA by not only keeping materials out of the landfill but also conserving resources by using those materials in new products and markets. 2. Doesn't specifically address measurement issues but	1. The Board's recently adopted strategic plan addresses sustainability and increasing markets for recyclables. 2. State and local governments can do more to buy recycled products. The Board is co-sponsoring a recycled products trade show in 2002 and will target local

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
		focusing on measurement of waste. • Enhance recycling market development zone (RMDZ) program. • Mandate minimum recycled content from manufacturers for an expanded list of materials. • Quantify recycled product market development efforts and programs Implemented by the State. • Promote recycling by leveraging funding from various sources (separate from the RMDZ program), such as U.S. Environmental Protection Agency, Housing and Urban Development, Dept. of Commerce, private foundations, etc. For example, through grants and programs such as California Jobs Through Recycling.		shifts focus from measurement to efforts that help programs. 3. Requires statutory and regulatory changes. 4. Could result in increased cost to State and local government agencies for purchase of recycled content materials.	government purchasers. Also, the Board is working to incorporate the State Agency Buy Recycled Campaign minimum content requirements into Statewide contracts. 3. The Board is improving the RMDZ program through several activities including investigating how best to leverage RMDZ loan funds. 4. Rather than minimum content programs, Board staff is focusing on development of specifications for recycled content for a list of products for environmentally preferable purchasing. 5. The Board and the Dept. of Conservation are working on a plastics white paper that includes examining how State programs can help increase the use of postconsumer plastics. 6. Moderate-to-large impact on Board resources could result, if new programs and/or loans and grants are developed. 7. May also require significant Board resources for implementation, compliance monitoring, and enforcement.
Change What Counts (CWC 3)	**Statute**	Remove the 10% diversion limit for direct burn transformation processes for forest debris (also called slash) used for power generation.	In some areas of the state, there are no alternative economical ways of diverting forest debris.	1. Meets the intent of the IWMA to the extent that waste materials are diverted from landfills, but would “elevate” direct burn	1. Board’s recently adopted Strategic Plan supports, in general, energy recovery from waste through clean technology. 2. May require tracking and

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
				disposal in the waste hierarchy. 2. Would address statewide energy issues by increasing feedstock materials for under-utilized cogeneration facilities. 3. Forest debris and wood waste are poor feedstock materials for compost operations, and there are limited alternative reuse options for these materials. 4. Would require controversial legislative action.	regulating of facilities not currently part of measured waste system. 3. Regulating new types of facilities is often controversial. 4. MSW transformation facilities may see lifting limits on other types of transformation as unfair. 5. Some have expressed concerns that this would open the door to allowing credits for incineration of other types of waste. Legislation could limit the scope based on material type and apply the allowance only to areas where there are no alternative economical ways of handling the material, except landfilling.
Training (TRN 1)	**Policy**	The Board shall provide training to increase knowledge of the diversion rate measurement system: • Disposal reporting system training to facility supervisors and counties. • Disseminate information on adjustment method factors that have been accepted or denied previously by publishing information on Board Web site. • Publish information on what economic activities are included in taxable sales.	Lack of knowledge of the requirements and importance of the disposal reporting system and adjustment method is widespread. Training and education could reduce errors.	1. A cost-effective way to improve knowledge and increase accuracy. 2. Flexible. 3. Beneficial to jurisdictions. 4. Relatively easy to implement.	1. Recommended by Board. 2. Some cost to the Board. 3. Additional travel funds/staffing may be needed if solution cannot be accomplished within existing budget. 4. May require policy or guidelines to address alternative adjustment factor data. 5. May increase success rate of new alternative adjustment factor proposals. 6. Unknown impact on number of new alternative adjustment factor proposals.

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
		• Publish information on the extent and scope of errors in CIWMB estimates of fourth quarter taxable sales. • Publish information on inherent limits of base-year generation amounts, adjustment method formula, and report-year disposal. • Publish steps jurisdictions may take to understand adjustment method. • Conduct public workshops on an ongoing basis.			
Training (TRN 2)	**Policy**	Increase the number and types of disposal reporting system reports available on the Board Web site, including ADC by material type and jurisdiction disposal data by disposal facility.	Not all the types of data presented to the working group are available on the Web site for wide-spread use.	1. Low cost to develop reports. 2. Graphics similar to those presented to working group make it easier to identify potential errors.	1. Recommended by Board. 2. Would not require regulatory or statutory change. 3. Supports the Board's efforts to make information and data readily available.
Further Study (FS 1)	**Policy**	Continue further analysis of the accuracy of adjustment method formula, including: • Factor weighting. • Long term accuracy. • Interrelationships between independent variables. • Merits of using Board of Equalization's taxable sales deflator, rather than the consumer price index.	Do the existing adjustment method formula and factors accurately estimate waste generation?	1. Improve accuracy over time. 2. Reasonable cost. 3. May require additional statistical assistance. 4. Benefits a large number of jurisdictions	1. Recommended by Board. 2. May require additional staff and/or contract funding by the Board. 3. Greater adjustment method accuracy may require more complex formula. 4. May or may not benefit many jurisdictions.

SB2202 Table of Recommendations

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Recommendations and Additional Comments
Further Study (FS 2)	**Statute**	Place more responsibility on generators of difficult-to-handle waste.	Existing law places an unequal burden on local governments, which cannot prevent the production of waste by manufacturers without a mechanism for increasing shared responsibility.	1. Enhances both potential conservation of resources and reduction in landfill disposal through expanded financial incentives and disincentives at all levels. 2. Targeted implementation based on existing models will be essential in reaching goals. 3. Shifts focus from counting to implementation.	1. Recommended by Board. 2. Already part of Board's recently adopted strategic plan. 3. May cause a shift in costs for consumers from government diversion programs to higher cost products. 4. May discourage generation of difficult-to-handle waste and encourage alternatives. 5. Requires statutory and regulatory changes.
Further Study (FS 3)	**Statute**	Remove the existing 10% diversion limit for non-burn transformation processes such as bioreactors, gasification, pyrolysis, etc.	Under existing law, jurisdictions can claim only a portion of transformed waste as diversion. This has created a waste stream that is neither disposed nor diverted. It also serves to discourage development of innovative non-burn technologies that provide a means of waste diversion from landfills.	1. Meets the intent of the IWMA to the extent that it provides credit for diverting waste from landfills. 2. Would eliminate confusion about reporting on certain parts of the waste stream that are neither diversion nor disposal under existing rules—this becomes an issue for jurisdictions establishing new base years. 3. Provides incentives for innovative waste diversion activities for materials that are harder to divert. 4. Would require legislative and regulatory action.	1. Board's recently adopted strategic plan supports, in general, energy recovery from waste through clean technology. 2. For materials currently handled outside the measured waste stream, there is no 10% limit. 3. May require tracking and regulating of facilities not currently part of measured waste system. 4. Regulating new types of facilities is often controversial. Would require some Board resources. 5. Could be seen as moving transformation up the waste management hierarchy.

Table 3-1. SB2202 Synthesis Group Recommendations On Which the Board Adopted a Different Position or No Postion

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Positions and Additional Comments
Accuracy (ACC 5)	**Regulation &/or Statute**	Remove uncertainties/ inconsistencies with how some materials are counted for disposal at different facilities; for example, special waste. May need to change the definition of solid waste in PRC section 40191(a), but issue should be addressed with input from stakeholders.	Treating some facilities differently causes inequity because some waste types are counted as disposal and others are not, depending on regional boards and local agency requirements and location and permit status of the disposal facility. Also, disposal of some materials is extremely variable year-to-year, which makes it difficult for jurisdictions to plan and implement diversion programs.	1. May require changes to the current law defining solid waste. 2. Would eliminate diversion credit for materials that are not defined as waste. 3. Could require increased tracking by waste types or categories. 4. Could require new base years. 5. Increases accuracy and eliminates equity issues when similar materials are counted differently at different facilities. 6. Need additional information to determine impacts on diversion rates. 7. Verifiable and enforceable.	1. At the July 2001 Board meeting the Board voted inerts at Board-permitted mine reclamation sites counted as disposal. 2. Issue of inert facilities may be revisited in upcoming C&D regulations. 3. Existing Board policy on Class II facilities allows exclusion of Class II wastes that are required to be disposed by control agencies (for example, regional water quality control boards and air districts). 4. Class II issues may require a regulatory change if existing procedure is insufficient.
Responsi-bility & Control (R&C 1)	**Policy**	Board should draft model ordinance and recommend local jurisdictions pass ordinances to regulate haulers to implement reporting procedures, to assess penalties to obtain accurate data and other information, and to enforce timeliness of reporting information. Board should encourage jurisdictions to require	There are no penalties for misinformation or untimely information in the disposal reporting system. This results in inaccurate origin information.	1. Some jurisdictions have successfully used this approach to increase accuracy of waste origin information. 2. Provides an additional enforcement mechanism based on verifiable information.	1. No Board position. 2. Some increased cost to the Board to develop model ordinance. 3. Increased cost to the jurisdictions to pass ordinances and enforce reporting.

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Positions and Additional Comments
		commercial self-haulers to report origin information to the county. Information feedback—when a jurisdiction finds out a hauler has misreported origin information, a jurisdiction could inform the hauler to report correctly or they will apply penalties.			
Responsi-bility & Control (R&C 6)	**Policy &/or Regulation**	Remove institutional barriers to diversion programs. Examples: streamline/fast-track permitting of diversion activities such as C&D processing; support development and siting of businesses that process gypsum; educate local enforcement agencies and Board staff to assist in program/facilities development. The Board should look at its own policies as well as other barriers that may inhibit the development of diversion programs.	Barriers exist that inadvertently delay implementation of diversion programs.	1. Does not specifically address diversion measurement problems, but addresses unintended consequences of policies or procedures that delay programs. 2. Could be easily implemented by directing Board staff to address barriers as they arise. 3. Small or moderate changes at the State level can have big results at the local level. 4. Would not address local barriers to diversion programs or processing of materials. 5. Regulatory and/or statutory changes may be required.	1. No Board position. 2. Board would need to set up system to review policies and/or address unintended consequences as they are brought to the Board's attention. 3. Regulations for C&D processing are currently being developed and can be modified as needed. 4. The Board must carefully consider specific types of facilities as new regulations and policies are developed, in order to balance the advantages of streamlining with protecting the health and safety of Californians and the environment.
Responsi-bility & Control (R&C 7)	**Statute**	Adopt new laws to expand responsibility for diverting waste beyond cities and counties by requiring disposal facilities to divert waste from self-haulers.	In many cities and counties, waste that is self-hauled makes up a significant portion of the waste stream (up to 30 to 40%). This self-haul waste	1. Expands responsibility for meeting IWMA goals beyond local governments to parties in the best position to divert self-haul wastes. 2. Implementing new	1. No Board position. 2. Self-haul waste is predominantly construction and demolition waste, which could perhaps be easily diverted. 3. Many facilities have existing programs that could be used as

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Positions and Additional Comments
			escapes the regulation of cities and counties and cannot be "cost effectively" diverted by local requirements or programs.	programs impacts resources and costs of disposal facility operators. 3. Tracking and measuring systems would need to be established and monitored by the Board—could be coupled with DRS. 4. Could result in significant diversion from a perhaps "untapped" waste stream that local governments find difficult to divert. 5. Would require statutory and regulatory change.	models. 4. May not be reasonable requirement for all facilities or regions—flexibility is important. 5. Some Board resources required if regulations are required. 6. Shifts some part of the burden from jurisdictions to facilities, which could be viewed as inconsistent with the intent of the IWMA which placed responsibility for diversion directly on jurisdictions.
Responsi-bility & Control (R&C 8)	**Statute**	Adopt new laws to expand responsibility for diverting waste beyond cities and counties; that is, require schools to work with local government recycling coordinators to divert waste.	Jurisdictions typically don't have control over all the waste generated within their borders. More diversion could be achieved by moving responsibility for reducing waste "upstream" on those that may have more control or impact on waste generation.	1. Widens circle of responsibility for meeting the intent of the IWMA, which helps jurisdictions meet the goals. 2. Impacts costs and resources to schools to implement new programs; increased cost and resources needed by the Board to monitor schools. 3. Does not address problems of current measurement system; may complicate measurement if schools must also measure goal achievement. 4. Opportunities for solid waste and environmental education in schools could increase if schools run their own programs.	1. No Board position. 2. SB 373 (Torlakson), recently signed by the Governor, requires the Board, by 1/1/2004, to evaluate implementation of school waste reduction programs, and if less than 75% of schools have implemented programs, the Board shall recommend statutory changes to require schools to implement diversion programs. This bill also contains other provisions for school diversion programs. 3. State agencies are required to divert waste, but they are not required to work with local government recycling coordinators.

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Positions and Additional Comments
				5. Requires statutory and regulatory change.	
Change What Counts (CWC 1)	**Statute &/or Regulation**	Exclude inert waste not subject to the BOE fee and disposed at mine reclamation facilities from the disposal reporting system (including the four Los Angeles County inert sites that are currently permitted).	Treating some facilities differently causes inequity; some waste types are counted as disposal and others are not, depending on regional boards and local agency requirements and location and permit status of disposal facility.	1. Addresses equity issues and gives jurisdiction more certainty since all similar tonnage would not count. 2. Eliminates DRS enforcement issue at mine reclamation sites.	1. Board voted at the July 2001 Board meeting to count inerts permitted at mine reclamation sites as disposal; may be revisited in upcoming construction and demolition regulations. 2. Would require regulatory or statutory change. 3. Jurisdictions that send inert waste to those facilities will need to take tonnages out of their base year amounts, and would not be able to count any of the diversion at those sites. 4. This could affect jurisdictions that changed their base year as part of the "LA fix" to include tonnage from these inert facilities.
Change What Counts (CWC 2)	**Statute**	Board supports proposed legislation that will exclude Class II-type waste from counting as disposal in the disposal reporting system.	There are limited diversion opportunities for special wastes as a whole. Special waste handling takes away from the implementation of diversion programs.	1. Addresses equity issues and gives jurisdiction more certainty since all similar tonnage would not count. 2. Verifiable. 3. Enforceable.	1. The Board will continue its existing policy that allows exclusion of Class II waste required to be disposed by a control agency (for example, regional water quality control board or air district). 2. If Class II tonnages were included in the jurisdiction's base year, the amounts would need to be removed. 3. This might discourage any treatment to allow the materials to be reused or recycled.
Training (TRN 3)	**Policy**	Board shall provide standard curriculum training for local government staff (especially	Problem in the IWMA compliance caused by lack of formal training	1. Facilitates implementation of IWMA programs by providing help to those	1. No Board position. 2. In the past, several colleges and universities have had certificate

Category & Reference #	Required Action	Solution Considered	Issue Addressed	Working Group Considerations/ Criteria Met	Board Positions and Additional Comments
		new recycling coordinators) responsible for IWMA program implementation and other waste management duties.	and education opportunities or requirements for local program coordinators in resource management issues and strategies.	made responsible for the IWMA—local jurisdictions. 2. Moderate resources may be needed at the Board to set up training and certification. 3. Does not directly address measurement issues. 4. Models exist at the State level already.	programs in solid waste management.
Further Study (FS 4)	**Statute**	Establish a menu of diversion programs appropriate for jurisdiction characteristics and evaluate jurisdiction performance based on implementing programs and meeting effectiveness criteria such as participation levels.	Many jurisdictions currently spend significant resources on documentation of existing diversion rather than program implementation. By shifting the emphasis to development of programs and implementation, millions of dollars in resources each year can be shifted, resulting in higher overall diversion. Also allows jurisdictions with very difficult measurement problems to move toward meeting the IWMA goals despite measurement problems.	1. Essential to develop method of determining program effectiveness/monitoring progress, such as establishing program criteria and/or using waste sorts to check on recyclables in waste stream. 2. Shifts resources from documentation to implementation and monitoring of programs. 3. The Board would still need to monitor and enforce program implementation requirements. 4. Would remove measurement of numerical diversion rate. 5. Removes pressure to show 50% diversion and puts pressure on implementing effective programs. 6. May require regulatory or legislative changes. 7. Cost-effective, flexible. 8. Enforceable.	1. No Board position. 2. Determining program effectiveness and monitoring progress may mean diversion needs to be counted. 3. Evaluating private diversion programs may be difficult and/or controversial for local governments and the Board. 4. Some Board resources would be required to develop methods and/or regulations.

Chapter 4 Review of the Disposal Reporting System

Historical Perspective

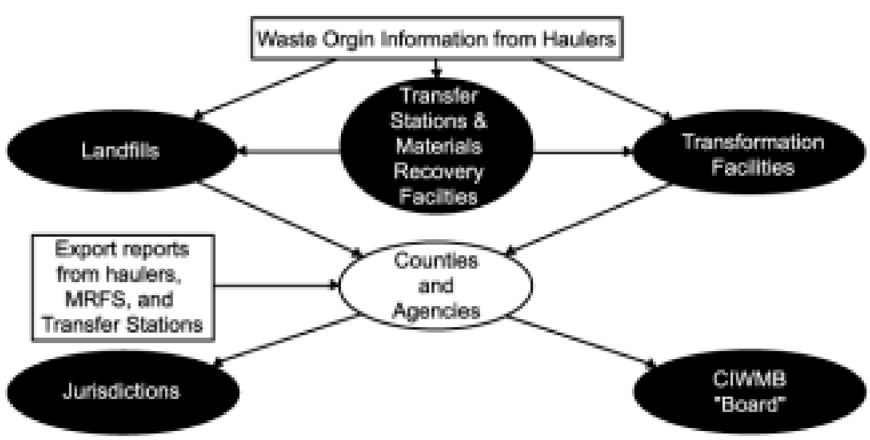
With the passage of Chapter 1292, Statutes of 1992 (Sher, AB 2494), measurement of 25 percent and 50 percent diversion required by the Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989 [IWMA, 1989]) was changed from a generation-based diversion rate measurement system to a disposal-based system. Measuring waste generation (disposal plus diversion) amounts in the base-level calculation proved costly and difficult for local governments; for most this was the first time they had quantified this information. As a result, many of the base-level generation studies contained inaccurate and incomplete data. Often portions of the waste stream, such as self-haul (hauled by someone whose primary business is not hauling waste) and construction and demolition waste, were either undercounted or left out of the studies entirely. In the proposed disposal-based diversion rate measurement system, disposal amounts—rather than diversion amounts—would be used to determine compliance with the diversion mandates. Accurate disposal data is critical in a disposal-based system.

The Existing Disposal Reporting System

The Board's disposal reporting system, which took effect in 1995, tracks landfill disposal amounts by jurisdiction (that is, city, county, and regional agency). Each operator of Board-permitted solid waste disposal facilities (landfills, transfer stations, materials recovery facilities, and transformation facilities) reports disposal data to the county or regional agency. Counties or regional agencies, in turn, report these disposal tonnages each quarter to the Board and to the jurisdictions disposing waste within its boundaries.

The disposal reporting system relies on the waste origin and tonnage allocation information provided by responsible parties as shown in the following flowchart. (Figure 4-1)

Figure 4-1. Disposal reporting information flowchart.



Waste origin information is key in determining jurisdictions' disposal amounts. Title 14, California Code of Regulations, sections 18805–18810, require that waste origin information ("waste origin" refers to the city, county, or regional agency in which the waste was produced) be gathered, at a minimum, for one week in each quarter of the year for all solid waste disposed at permitted solid waste facilities. Solid waste facility operators are required to obtain waste origin information on all loads delivered by residential and commercial haulers during the required survey week periods of the 8th through the 14th of March, June, September, and December.

The disposal reporting system regulations provide minimum requirements in order to allow for the local flexibility requested by counties during the rulemaking process. If a county determines that another method of collecting data or another survey week would better meet its needs, the county may request an alternative method or survey week period with Board staff approval. To date, only one county has requested and received approval to implement an alternative method of reporting. Humboldt County has received approval from the Board to require haulers to report origin information directly to the county.

Counties may require operators to conduct more frequent surveys or may impose other more restrictive requirements on facility operators, such as surveying and weighing every load every day, without requesting Board staff approval. Some counties have requested that facility operators within their boundaries conduct daily surveys. Also, many facility operators are choosing to conduct daily surveys on their own because they believe it to be more accurate. Additionally, they believe it is easier to train gatehouse staff to obtain origin information on a daily basis rather than to have to remember to obtain origin information during the quarterly survey week period.

During the quarterly survey week, each operator must collect data on the amount of waste received for disposal from each jurisdiction at its facility. Waste amounts are totaled for each jurisdiction for the entire survey week. The operator divides the amount received from each jurisdiction by the total amount of waste received for disposal from all jurisdictions at its facility. The operator then arrives at a percentage of waste disposed by each jurisdiction for the survey week. The percentage of waste disposed for each jurisdiction during the survey week is then extrapolated for the quarter to estimate waste disposed for each jurisdiction for that quarter.

Every landfill operator reports each jurisdiction's waste origin and estimated amounts to the county or regional agency each quarter. The amount of material segregated for use as alternative daily cover (that is, Board-approved materials other than soil used as a temporary overlay on an exposed landfill face) is also reported in the quarterly reports, but it is not counted as disposal. Unlike the minimum one-week per quarter waste origin surveys, the regulations require operators to collect alternative daily cover amounts, types, and jurisdiction of origin on a daily basis.

Counties or regional agencies report jurisdiction estimated disposal amounts to the affected jurisdictions and to the Board for input into the Board's disposal reporting system database. The county and regional agency reports include disposal information from operators on waste disposed within the county as well as information from haulers on waste exported out of state (including exports to tribal lands). Counties may revise the disposal allocation amounts between April 15 and May 15, to correct inaccuracies for the previous reporting year.

Jurisdictions use the disposal allocation amounts when calculating their diversion rates. If jurisdictions disagree with the disposal amounts, they have the opportunity to address their concerns and provide additional information in their annual reports to the Board.

The accuracy of this data could greatly affect a jurisdiction's diversion rate. Therefore, it is imperative that the various parties involved with disposal reporting work cooperatively to provide the most accurate data possible to ensure the integrity of the disposal reporting system.

November 1999 Disposal Reporting System Hearing Issues

In the first years of the disposal reporting system, the Board learned a great deal about the state's waste flow patterns and variation. In 1999, with four years of disposal reporting experience gained by the various parties involved with the disposal reporting system, the Board held a hearing to discuss some of the major disposal reporting issues. During a special Board meeting held November 17, 1999, representatives from the waste hauling industry, solid waste facilities, local government, environmental groups, and consulting firms addressed various reporting issues and proposed potential solutions to some of the common problems.

Allocation and Self-haul

Allocation of waste among jurisdictions has been a topic of concern since the very beginning of the disposal reporting system. There is concern about the accuracy of disposal amounts assigned to jurisdictions based on the periodic waste origin surveys. Accuracy is often directly proportional to the frequency of the waste origin surveys. For example, counties that require daily surveys of every load typically have higher data accuracy than counties that conduct the minimum weekly surveys and extrapolate the disposal data for the quarter.

During the hearing in 1999, some people expressed concern that haulers sometimes inaccurately report waste origin because of unclear jurisdiction boundaries or because there may be an economic incentive to give incorrect origin information if the facility charges different fees for different jurisdictions, or for other reasons. Another major concern is allocation of tonnage when waste origin cannot be determined at the disposal site. In these cases, the waste tonnage is allocated to the jurisdiction in which the disposal facility is located (host assigned). Host assigned waste tonnage can significantly impact the host jurisdiction's diversion rate calculation.

Self-haul is defined as waste delivered to a disposal facility by someone whose primary business is not hauling waste. Self-haul waste is typically more difficult to track or attribute to a jurisdiction of origin than waste delivered by franchised haulers who have accounts with the solid waste facilities they use. In the larger more urban counties, self-haul may constitute only a small percentage of the incoming disposed waste stream, whereas in the smaller more remote rural communities, or areas where there is no garbage pickup service, self-haul makes up the vast majority of the incoming disposed waste stream. Therefore, misallocating self-haul could have varying impacts on the disposal tonnage for the jurisdictions sending their waste to the facilities, depending on the size or population of the county.

Special Waste

Another issue addressed was special waste. Special waste consists of waste types typically disposed in Class II landfills, such as non-friable asbestos, sludge, auto shredder fluff, and ash. Questions regarding non-hazardous wastes have been an issue since the development of the 1990 base level data. Jurisdictions may or may not have included special waste going to Class II landfills (as defined by each of the regional water quality control boards), construction and demolition wastes, and/or inert wastes in their planning documents or base-level generation. The inclusion of these waste types in reporting year disposal was a significant problem for jurisdictions that did not include the waste types in their base-level generation.

Not including these waste types in the base level, but including them in annual disposal reporting, can cause significant drops in diversion rates. In addition, some special wastes, such as contaminated soil, ash, non-friable asbestos, and auto shredder fluff are required by regional water quality control boards to be disposed due to their contamination levels. Comments were made about the fact that diversion opportunities for these special materials are limited, and jurisdictions do not want to be penalized for waste they cannot divert.

Waste-derived alternative daily cover (ADC) usage was also a concern. Participants in the hearing were concerned that accurate tracking of alternative daily cover materials was a problem in some areas of the state, and that there is a perception that some landfills have a significantly high use of ADC.

Additional Issues

Other issues that impact the disposal reporting system accuracy have also been raised. In some cases, waste amounts are not accurate for waste exported out of state and to tribal lands. Waste allocation from landfills without scales is also problematic in obtaining accurate amounts and origins of waste. Facilities without scales, particularly in rural areas, may use conversion factors when calculating cubic yards of waste received into tonnage. Types of waste differ from load to load, and the best conversion factor may not be used. Further, with some jurisdictions disagreeing on their annual tonnage amounts and amending their disposal amounts in their annual reports to the Board, it is uncertain whether all tons disposed are captured statewide.

The Board recognized the seriousness of the issues raised at the hearing and provided additional staff resources, and it directed staff to focus efforts on improving the disposal reporting system. The Board also instructed staff to publicize methods used by jurisdictions that have solved disposal reporting problems as a model for others to consider. The following section discusses these efforts of the Board.

Fact Gathering/Data Analysis Efforts

To determine possible sources for error in disposal allocation, the Board began a series of fact-gathering programs and data analysis projects. Those programs and projects included facility site visits, telephone surveys, landfill record audits, quarterly survey data analysis, analysis of disposal trends, and an evaluation of ADC use. The results of these analyses were presented to the DRS working group and serve as the basis for many of their recommendations (see Appendix D for more detailed information on analyses).

Facility Site Visits

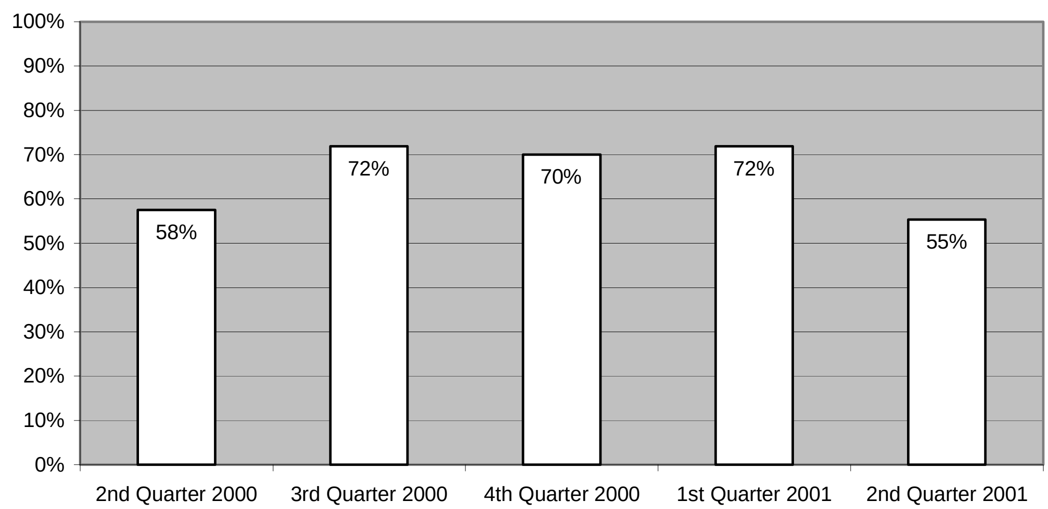
Much of the information about disposal reporting issues has come from jurisdictions and others. Because of concerns raised at the November 1999 hearing about self-haul, the Board decided to take a closer look at what occurs at the disposal facility gatehouse, the first point of contact between the self-hauler and the disposal facility staff. So, beginning with the required June 2000 waste origin survey week, staff began a series of unannounced disposal facility site visits around the state. At each facility visited, drivers would arrive in a small pickup truck or similar vehicle, with a load of waste, and represent themselves as a local residential self-hauler. The Board staff would then record what waste origin questions, if any, were asked, as well as other data about the site. After the site visits were completed, the operator for each site visited was sent a letter explaining the unannounced visit and given the results of the visit.

For those sites where no waste origin questions were asked of the driver, operators were asked to respond with an explanation of their procedures for allocating waste to jurisdictions. It must be emphasized here

that, at this time, residential self-haul is the only sector of the disposed waste stream that the Board has the ability to evaluate in this manner.
According to the Board's 1999 statewide waste disposal characterization study, self-haul comprises about 13 percent of the disposed waste stream, with commercial self-haul accounting for approximately ten percent and residential self-haul contributing about 3 percent.

More than 150 facility visits were conducted during scheduled waste origin survey weeks in 2000. Emphasis was placed on revisiting sites that failed to ask waste origin questions on the previous visit. About 90 facilities have been visited in the first half of 2001. A graphic representation of the results of the visits is shown in Figure 4-2.

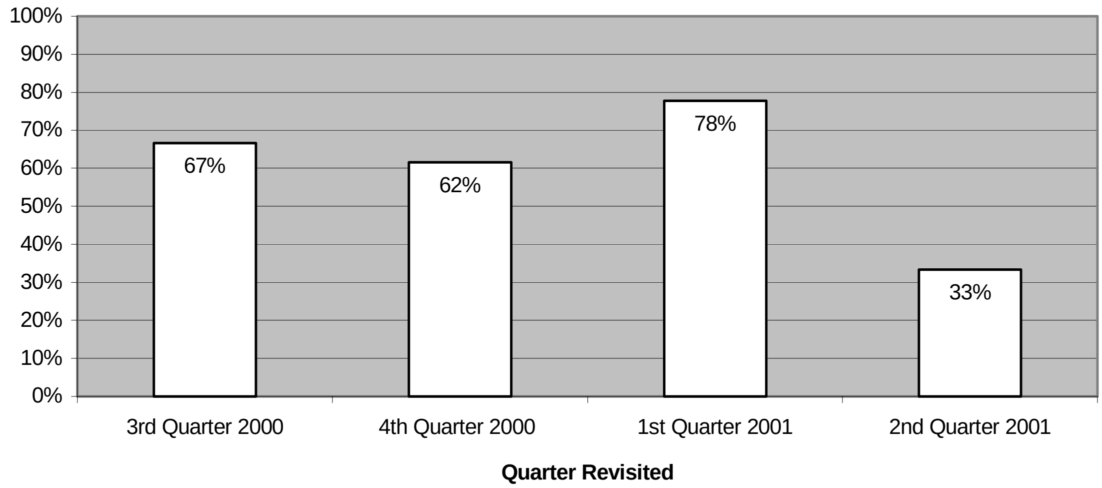
Figure 4-2. Percentage of facilities visited that asked origin questions of small residential self-haulers in 2000–01.



Note: Residential self-haul constitutes approximately three percent of the total waste stream.
Source: CIWMB

The following graph (Figure 4-3) shows the results of the facilities that were revisited.

Figure 4-3. Percentage of facilities asking small residential self-hauler origin questions when revisited in 2000–01.



Note: Residential self-haul constitutes approximately 3 percent of the total waste stream.
Source: CIWMB

The figure shows less than eighty percent of facility operators were in compliance with the residential self-haul minimum waste origin survey requirements for residential self-haul waste loads.

Based on responses to the follow-up letters sent out by the Board, it appears that facility operators want to comply with waste origin survey requirements. However, lack of gatehouse staff training and oversight seems to be a problem. In conducting the visits, staff found that some gate attendants were not aware they were required to conduct waste origin surveys to obtain waste origin information, or why it was required. Additionally, most gate attendants who did ask waste origin questions generally asked where the driver was from, rather than where the waste was from. This can have a significant effect on the allocation of self-haul waste, especially for commercial self-haul. For example, a roofer may do business in several jurisdictions. If he/she is asked where the debris is from, the answer may be different than the driver's residence. Many of the facility operators responded they have included revised procedures to require gatehouse staff to obtain daily waste origin information, surveying every load of waste every day of the facility operation. Other facility operators are implementing innovative ways to assist in the collection of origin data. Given this information, the DRS working group discussed ways operators could improve the collection of origin data.

Some of those are:

- Post signs explaining a survey week is underway and waste origin questions are being asked. For example:

STATE-REQUIRED QUARTERLY WASTE ORIGIN SURVEY WEEK 8TH Thru 14TH

- Post signs in multiple languages to eliminate language barriers between gatehouse attendants and haulers.
- Distribute information flyers to all customers explaining the purpose and importance of survey week.
- Request a utility bill or a rent receipt to verify the origin of self-haul customers.
- Estimate an average weight for self-haul vehicles by randomly weighing a percentage of the self-haul vehicles. This information can be used as an estimated weight for incoming unweighed self-haul vehicles.
- Place decals with the vehicle's empty weight on the inside door of regular customer self-haul vehicles. This information can be used to obtain an accurate weight of the waste.
- Request and record self-haul business licenses. This information can be used to double-check the validity of having a license to do business in the jurisdiction from which the waste is being reported.

Landfill Survey of Waste Origin Practices

Because the regulations allow local flexibility, there is no statewide standard method for collecting waste origin data. Board staff inventoried data collection practices at landfills statewide. Such an inventory of practices could ultimately lead to improvements to reporting system practices by either setting statewide standards or identifying a list of best landfill practices. There are 181 permitted landfills in the state, but the study excluded the landfills that allocate all their accepted waste to the "host" jurisdiction (that is, the jurisdiction where the facility is located). In early 2001, the Board staff conducted a telephone survey of 143 landfills throughout the state. The respondents were told the purpose of the survey and that participation in the survey was voluntary. Ninety-six of the 143 landfills surveyed responded to questions concerning waste origin survey frequency, scale use, and methods used to verify waste origin. Questions asked included:

- How often does your facility conduct origin surveys?
- Do you use the same survey for self-haul as for commercial haulers?
- How do you verify origin of waste?
- Do you have scales?
- Do you weigh self-haul and commercial loads?
- Do you use computers to track data?

Concerning the question of waste origin survey frequency, the data showed:

- 77 percent conduct daily origin surveys.
- 8 percent conduct origin surveys only during the survey week.
- 8 percent conduct daily origin surveys only for commercial loads.
- 6 percent either do not accept public waste or all waste loads are assigned to the host jurisdiction.

Scale use data produced the following results:

- 58 percent weigh both commercial and self-haul loads.
- 23 percent weigh commercial loads only.
- 10 percent did not respond.
- 7 percent either do not have scales or do not use scales, for either self-haul or commercial loads.

Finally, in response to methods used to verify waste origin, the analysis showed:

- 76 of the 96 operators responded.
- 80 percent do not verify waste origin.
- 8 percent require a driver's license/other identification or utility bill.
- 4 percent accept other forms of verification (for example, demolition permit).
- 2 percent require a pre-purchased ticket.

The Board will continue to periodically conduct the landfill surveys to update and monitor landfill practices for conducting origin surveys, their use of scales, and methods to verify origin information. This data may also be used in efforts to assist jurisdictions in resolving DRS issues.

Landfill Record Audits

When discrepancies arise between the disposal amounts reported in the DRS and to the Board of Equalization (BOE), the Board conducts a landfill record audit. The BOE collects the integrated waste management fee on each ton of waste disposed at Board-permitted landfills. This process involves visiting the landfill where the discrepancy exists and reviewing their records for the quarter in question. Sources for the discrepancies are determined and corrections are made to the appropriate reporting system. This is an ongoing process, employed on a case-by-case basis as necessary to reconcile the county-reported disposal tons from the DRS with the BOE disposal tons reported by landfill operators. As a result of the landfill record audits, a number of reporting errors have been discovered. Several facilities were paying fees on recycled waste, but fees are only charged for disposed waste. Other facilities were not reporting ADC correctly, and still others were found to have made addition errors or had transposed numbers in their DRS reports. Some corrections resulted in fee refunds for several facilities. All of the errors have been easily rectified but required research to identify the proper correction. The Board will continue to investigate any discrepancies between tonnage reported to the DRS and tonnage reported for fee purposes.

Quarterly Survey Data Analysis

Chapter 740, Statutes of 2000 (Sher, SB 2202) requires that the Board evaluate the accuracy of the disposal reporting system under differing circumstances. Some have described this as determining a "margin of error" for the DRS. As a part of that evaluation, the Board performed some data analysis using the DRS data. Data used for this analysis came from a study conducted for the Board in 1997 and 2000 data provided by Riverside County. The 1997 study utilized actual daily disposal data obtained from two Southern California counties, Riverside and San Diego. The data contains the total tonnage disposed by each jurisdiction within the county, at landfills within the county, for each of the 52 weeks of 1995.

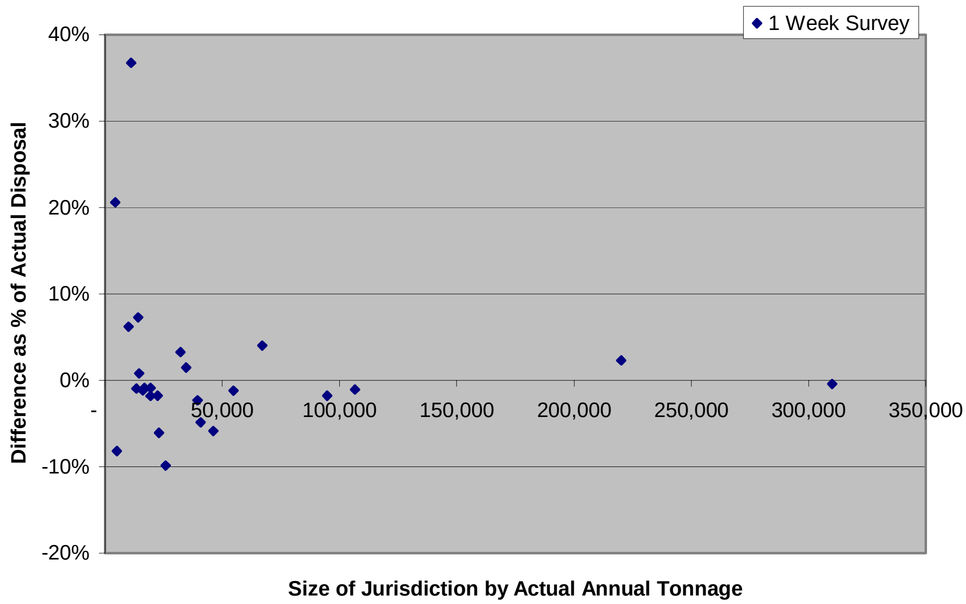
The premise for this analysis is that there are three potential major error sources in the disposal reporting system. First, there is the inherent error due to extrapolation. This comes from determining a weekly allocation percentage for each jurisdiction and applying that percentage to the total quarterly tonnage to estimate disposal. The assumption is that the selected week or weeks are representative of the entire quarter. Even under ideal conditions, a jurisdiction's disposed tonnage will vary from week to week due to a number of factors, such as rain, holidays, hauler routings, etc.

The second inherent error comes from non-regular disposal (that is, increased disposal amounts due to one-time events, such as building demolition, major sports events, etc.). This error occurs from extrapolating tonnage for a jurisdiction who: (a) disposed during the survey week, but not during the rest of the quarter; or (b) did not dispose during the survey week, but disposed during the rest of the quarter. In the first case, their disposal tonnage is overestimated in the DRS. In the second instance, their tonnage is divided among the remaining jurisdictions for the entire quarter.

The final error can be described as transactional or translational error; that is, allocating waste to the wrong jurisdiction. This frequently occurs when unincorporated areas of a county and an incorporated city have the same name, or when a driver has picked up loads in multiple jurisdictions and does not know the percentage of each jurisdiction's waste amounts. Sometimes it is economically advantageous for the driver to provide the incorrect jurisdiction for the origin of waste. This often occurs in areas where landfills charge reduced fees for disposal from specific jurisdictions, or where local ordinances limit the jurisdictions from which the landfills may accept waste. The crux of the analysis addressed the inherent errors that result from the mathematical extrapolation technique and non-regular disposal.

To determine the extent of the inherent errors in the system, 1995 data from Riverside County was evaluated. Disposal data that was recorded for each jurisdiction during the required quarterly survey week was used to extrapolate a quarterly disposal tonnage for that jurisdiction. Those extrapolated quarterly tonnages were added to compute an extrapolated annual tonnage for each jurisdiction. Then for each jurisdiction, the extrapolated annual tonnage was compared to the actual annual tonnage and a percent error determined. The following graph (Figure 4-4) shows the results of this comparison. The percent error is plotted against the total annual tonnage disposed.

Figure 4-4. Potential error resulting from using one-week origin survey tonnage data vs. actual daily recorded tonnage data. Riverside County—1995

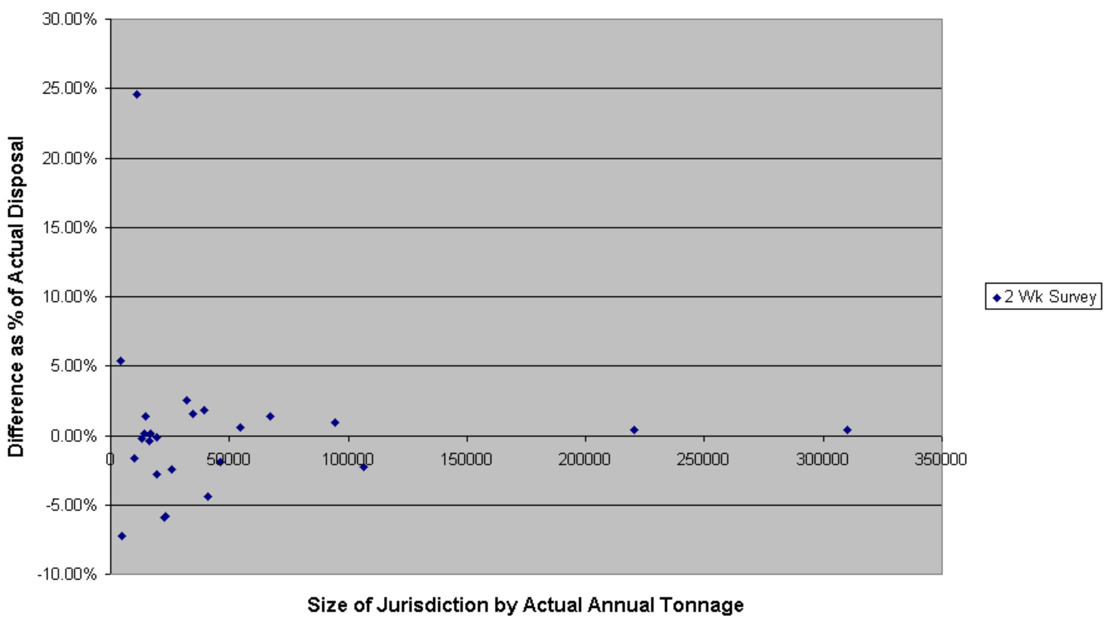


If the extrapolated data matched the actual data, all the data points would fall along the 0 percent difference or "zero error" line. The further away from the zero error line, the larger the error. Actual annual tons disposed can be used as an indicator of jurisdiction size. In this graph we see that the largest variability in the percent errors are at the lower end of the actual annual tons disposed axis. Thus, this data indicates that the smaller the jurisdiction, the greater the potential for allocation error.

To evaluate the premise that a longer survey period would improve results, study data was used to simulate a two-week survey period encompassing the designated survey week. The results of that analysis are shown in the graph below.

The accuracy of the goal measurement system for a particular jurisdiction is affected by three main parts: the jurisdiction's base-level waste generation study, which established its waste generation amount in 1990; the disposal reporting system, which measures the tonnage of disposed waste originating in the jurisdiction; and the adjustment method, which estimates the change in waste generation over time due to changes in demographic and economic factors. The Board recently adopted guidance for jurisdictions on establishing new base-level generation.

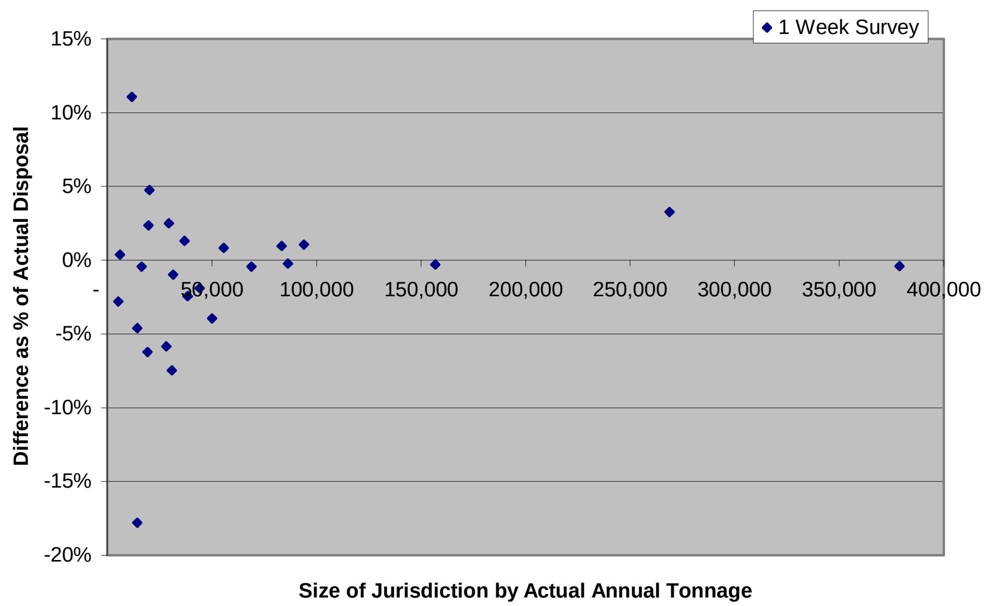
Figure 4-5. Potential error resulting from using two-week origin survey tonnage data vs. actual daily recorded tonnage data. Riverside County—1995



This graph (Figure 4-5) shows that for the two-week survey period, the data points move closer to the “zero error” line, reinforcing the premise that more data points produce more precise results. Both of these graphs also show that there is no trend toward either over- or under projecting disposal tons by the DRS. The number of disposal “over” projections is pretty close to the number of “under” projections.

Riverside is the only county that provided the Board daily disposal data for 2000. Similar analyses were done with calendar year 2000 data obtained from Riverside County, as displayed in the following graph (Figure 4-6).

Figure 4-6. Potential error resulting from using one-week origin survey tonnage data vs. actual daily recorded tonnage data. Riverside County—2000



From this graph it appears the Riverside County DRS data has improved because the percent errors are less than for 1995. Though the percentages are lower, the largest variability still occurs around the smaller jurisdictions.

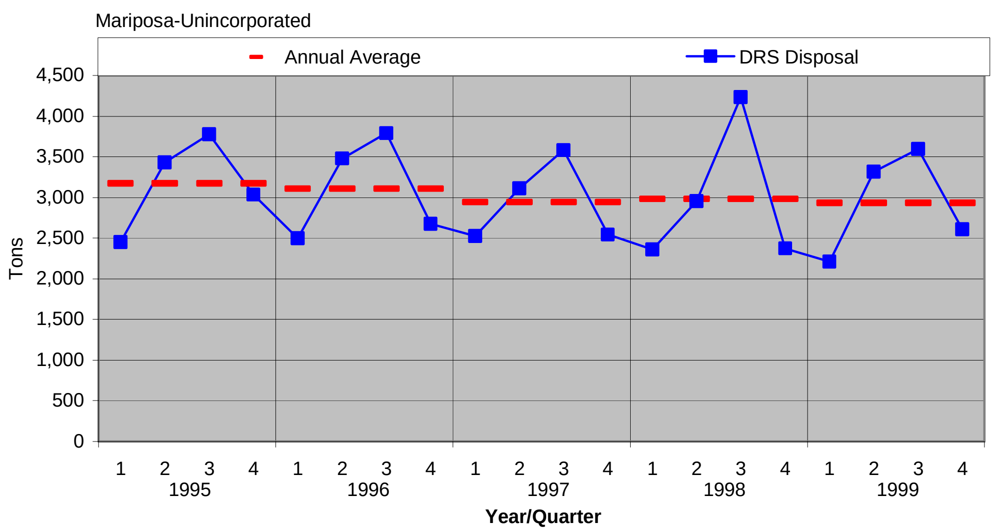
It is important to note that this data is from only one county and may not be representative of all counties. More data from more counties is needed to conduct a thorough analysis. However, analysis of this Riverside County data does provide several indicators. First, estimates obtained by extrapolating from DRS survey weeks do not tend to either overestimate or underestimate disposal, because data points are both above and below the “zero” error line. Second, it appears that smaller jurisdictions are the most adversely affected by DRS errors. That is shown by the fact that the largest variability of difference errors occurs around the area of smallest annual disposal. Third, the length of survey has a pronounced effect on the precision of DRS data. The longer the survey period (that is, the more data points), the more precise the allocation. Finally, the transactional errors are not quantifiable. There is no statistical routine that can account for misinformation on waste origin, intentional or otherwise. Thus, creating a reliable “margin of error” percentage that can be applied to DRS data is not feasible.

Analysis of Disposal Trends

The purpose of this analysis was to determine whether trends and patterns exist in jurisdictional disposal data. (See Appendix A for more detailed information.) In this analysis, "patterns" would include seasonal variations, whereas "trends" would describe increases or decreases over several years. Identifying outliers, or extreme points, in these patterns and trends may determine which jurisdictions, or types of jurisdictions, have potential accuracy issues. The analysis showed that quarterly DRS disposal is highly variable at the jurisdiction level. Some jurisdictions show strong patterns or trends, while others don't. In fact, some jurisdictions show no patterns or trends at all.

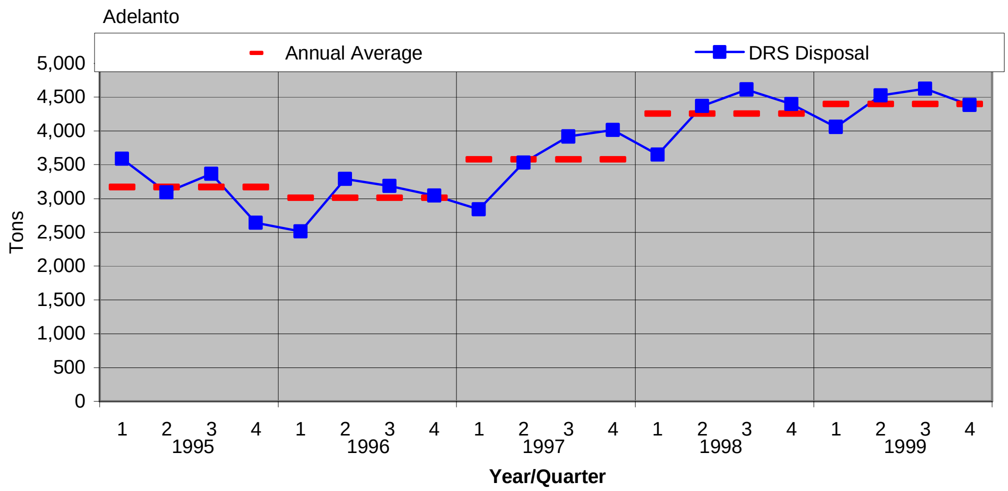
The analysis sought to identify three basic types of outliers: annual average, seasonal, and quarterly. The following graph (Figure 4-7) is an example of a jurisdiction with a strong seasonal pattern, showing obvious peaks in the third quarter disposal for each year. Even with the unusually high third quarter in 1998, the seasonal variation in disposal is obvious.

Figure 4-7. DRS quarterly disposal and annual average, 1995–99: seasonal pattern example.



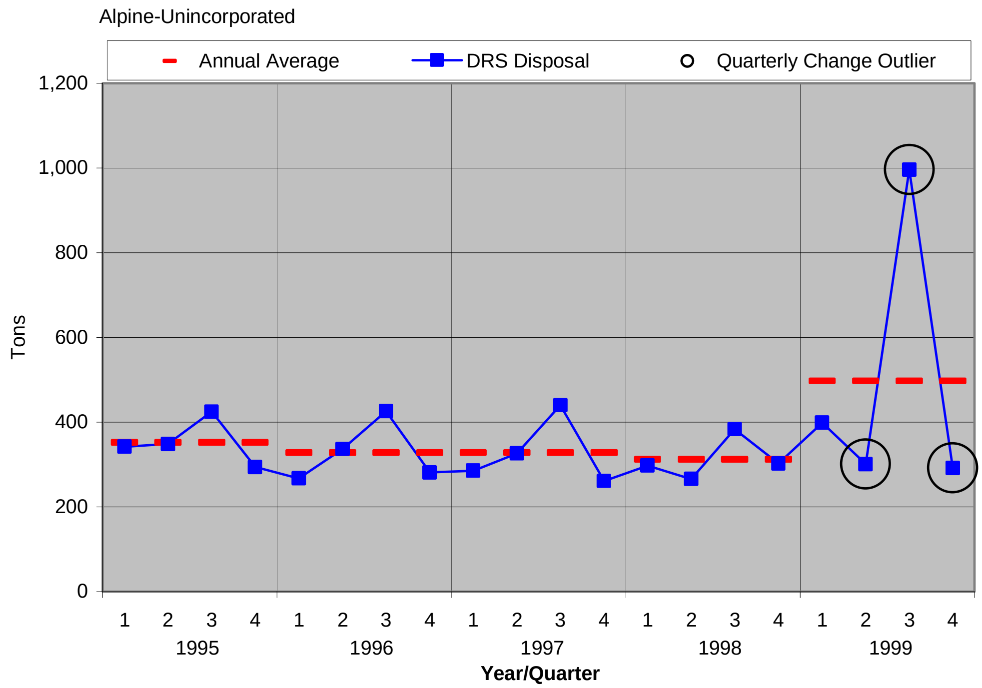
The next graph (Figure 4-8) is an example of a jurisdiction with a strong trend in disposal over time. Disposal is clearly going up, as you can see by the annual averages, which are indicated by the dashed lines.

Figure 4-8. DRS quarterly disposal and annual average,1995–99: quarterly trend example.



The analysis also looked at extreme changes in disposal from quarter to quarter. The following graph (Figure 4-9) shows a pretty strong seasonal pattern from 1995–1998. In 1999, the extreme data point for the third quarter pulls the 1999 annual average up, causing the second, third, and fourth quarters to be flagged as outliers. The data for third quarter 1999 should be investigated further to determine if it is correct.

Figure 4-9. DRS quarterly disposal and annual average, 1995-99: extreme point example.



The Board then analyzed the number of outliers in jurisdiction-level data compared to the number of outliers in countywide data. In most counties, jurisdiction-level data shows more potential outliers than countywide data. In fact, in 28 counties, all of the jurisdiction outliers disappear when the disposal data is examined at the countywide level. In nine other counties, the outlier rates for countywide data decrease significantly. This does not necessarily mean that there are no errors in the countywide data. It simply means the data is less variable and more stable at the county level. The data also shows that most of the counties that have high outlier rates dispose very small amounts. The average disposal for 23 of the 25 counties with at least one quarterly outlier was about 56,000 tons.

As a result of these trend analyses, the working group's discussion led to several conclusions:

- The DRS data shows that jurisdiction level data is very variable. Many jurisdictions show patterns, such as seasonality, and trends over time, while others do not.Individual jurisdictions with annual disposal less than 25,000 tons show more variability and outliers than jurisdictions with more than 25,000 tons annually. Jurisdictions with more than 100,000 tons disposal show considerably less variability and fewer potential outliers.
- Countywide patterns and trends are generally more stable, in general, than jurisdiction data, and most potential outliers disappear when the data is aggregated to the county level.

- However, smaller counties with annual disposal of less than 60,000 tons may not have more stable countywide data. Many of the small single-county rural regional agencies have unstable disposal patterns and trends, and many potential outliers. Therefore, single-county regionalization may not necessarily create better disposal data for smaller counties.
- Finally, in counties where daily waste origin surveys are conducted, even the smaller jurisdictions have fairly stable disposal, with less variability and fewer potential outliers. Daily surveys may prove to be the solution in counties with disposal allocation issues.

Evaluation of Alternative Daily Cover (ADC) Use

The use of ADC for waste diversion at solid waste landfills—especially green material that could otherwise be used as compost feedstock—has been subject to significant debate and controversy since the development of related Board policies in the early 1990s. In some locations, alternative materials are more plentiful than soil and therefore less expensive.

ADC is defined as any material other than soil that is used as daily cover at landfills. The Board must approve materials that are allowed to be used for this purpose. Currently, the Board has approved eight material types: ash, auto shredder waste or “fluff,” construction and demolition debris, compost material, green material, contaminated sediment (soil), sludge, and tires. Other materials are approved on a case-by-case basis.

Chapter 978 of the Statutes of 1996 (Bustamante, AB 1647) clarified the legislative intent that the use of waste-derived ADC (and other beneficial use of wastes at landfills) constitutes diversion through recycling (Public Resources Code [PRC] section 41781.3). Regulations adopted by the Board on ADC to comply with statute became effective on November 5, 1997, and February 3, 1998 (Title 27, California Code of Regulations [27 CCR], sections 20680, 20690, 20695, and 20700). These regulations established disposal site standards governing the use of ADC, alternative intermediate cover (AIC) and earthen material cover. The disposal reporting regulations were revised so that facility operators would not have to count materials used as ADC as disposal.

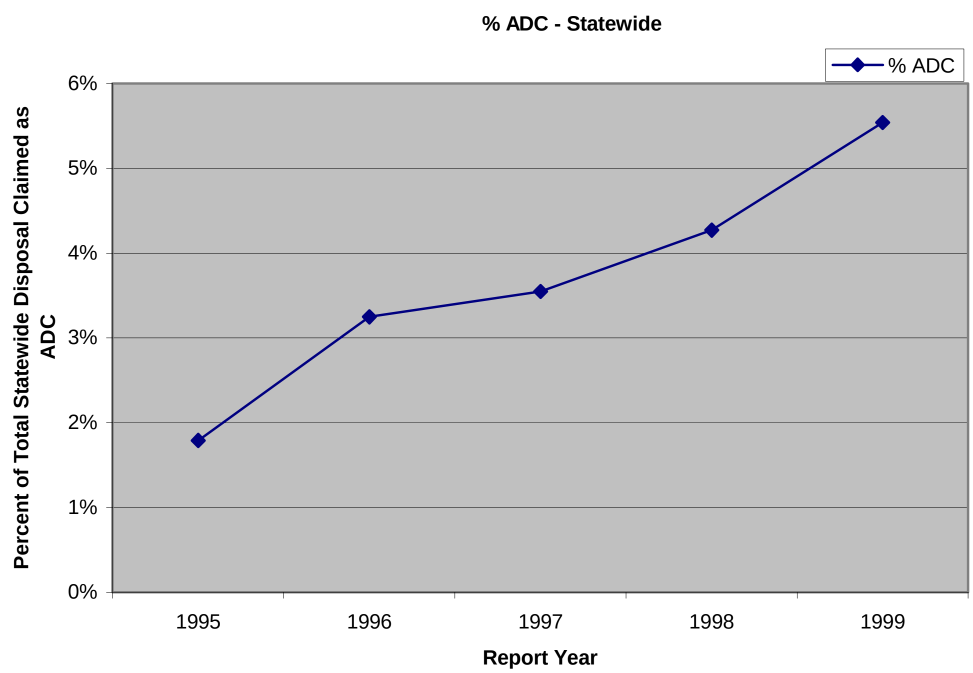
Local Enforcement Advisory #48 guides local enforcement agencies (LEA) on the use of ADC at landfill sites. The Board monitors and controls ADC use and potential overuse primarily through the implementation of State minimum standards by LEAs. The Board’s Permitting and Inspection Branch also conducts inspections of solid waste landfills every 18 months. Part of that inspection includes evaluation of daily cover and ADC. In addition, the disposal reporting system (DRS) within the Board’s Diversion, Planning and Local Assistance Division (DPLA) requires reporting of ADC from local jurisdictions and landfill operators. The Board also contracts with the State Board of Equalization (BOE) to collect and monitor State disposal fees. Compliance issues with ADC overuse and unauthorized use can be addressed through the combined activities of permitted facilities inspection, the DRS and the biennial review process, and BOE monitoring.

Potential overuse of ADC has been a concern of some stakeholders primarily because of the impact on composting facilities that compete for feedstock with ADC usage. In September 1999, the Board discussed the status of overall ADC use and potential overuse. Potential overuse of ADC was investigated but not confirmed. There have been problems with evaluating overuse of ADC using the disposal reporting system because other beneficial uses of ADC materials (for example, green material as mulch, construction and demolition debris for wet weather decks, etc.) were also being reported as ADC.

Board staff conducted an evaluation of ADC use reported to the DRS. The purpose of the evaluation was threefold. The first step in the process was to determine who uses ADC. Next, of those that claim ADC use, how much—as a percentage of reported total waste—is claimed. Finally, the analysis looked to see if there were any trends in ADC use.

ADC data was gathered from the DRS database for the years 1995 through 1999. The information was compiled for all the landfills within each county that reported ADC use. There were only 30 counties who reported significant ADC use in those years. However, in several cases, ADC was not claimed in each of those years. The following graph (Figure 4-10) shows the statewide ADC use as a percentage of total landfill intake. There has been a definite trend upward in the use of ADC statewide.

Figure 4-10. Percent ADC claimed of total statewide disposal



For 1999, the total reported intake of waste in all the landfills was 39,480,980 tons. Of this, 37,293,168 tons was reported as disposal, and the remaining 2,187,812 tons (5.5 percent) was claimed as ADC. The following table (Table 4-1) shows a breakdown of ADC claimed for that year by material type. Green material constitutes over half of the ADC claimed for 1999 statewide. Sludge, the next most common ADC material, constitutes about 15 percent of 1999 ADC claimed.

Table 4-1. 1999 ADC materials

Ash	**7,445 tons**
Auto Shredder Waste	**240,236 tons**
C & D	**188,920 tons**
Compost	**472 tons**
Green Material	**1,396,026 tons**
Contaminated Sediment	**17 tons**
Sludge	**320,546 tons**
Tires	**8,457 tons**
Mixed	**4,783 tons**
Other	**20,911 tons**

Source: CIWMB

For each of the 30 counties where ADC was claimed, the amount of ADC claimed in each year was computed as a percentage of the total landfill intake for that year. The data was then graphed for each county in order to identify possible trends. Some of the counties showed a definite increase in the amount of ADC used. Others showed a steady decrease. Many counties displayed unique spikes in certain years, while others showed a large variance from year to year.

The working group's discussion of this analysis led to several conclusions. First, there is definitely an upward trend, statewide, in the claiming of ADC. There could be any number of reasons for this, such as increases in the size and number of landfills, or decisions to employ substitute materials for daily cover rather than excavating tillable soil. Other reasons could include misreporting of ADC when the materials were actually used for other beneficial uses, such as for erosion control, road base, winter weather pads, etc.

Second, there doesn't appear to be any trend among the 30 counties claiming ADC. That is, it's not clearly defined whether larger counties use a greater percentage of ADC than smaller counties. Furthermore, a county's previous use of ADC does not reliably predict its future use. Finally, Board staff has been conducting on-site evaluations at landfills throughout the state to assist in monitoring ADC usage and reporting. During fall 2001, the Board heard several agenda items on the issues, impacts, and solutions concerning ADC use at several landfill sites throughout California that reported significantly high amounts of ADC use during report years 1999 and 2000. Most of the ADC issues were determined to be misreporting and the ADC data has been corrected. The Board will be considering potential overuse of ADC at two landfills at Board meetings in late 2001 or early 2002.

Inert Landfills

Working group members were concerned about the inequity in what counts as disposal at landfills. Historically, some inert landfills were not required to have Board solid waste permits, while others, specifically four inert mine reclamation sites in Los Angeles County, were required by local agencies to obtain Board solid waste permits. Local agencies required these inert facilities to obtain a solid waste permit to ensure groundwater protection. The DRS system only tracks disposal at permitted facilities. This causes inequity as jurisdictions disposing inerts at permitted facilities are allocated disposal tonnage, while jurisdictions disposing inerts at nearby unpermitted facilities are not allocated disposal tonnage for the same waste types. Tons disposed at an unpermitted facility effectively count as diversion in a disposal-based measurement system.

The Board has worked to resolve the issue. The Board approved the Los Angeles fix (a policy to correct for the base-level inaccuracies in Los Angeles County) to allow jurisdictions to establish a new base-level generation to include waste disposed at the permitted inert facilities. A jurisdiction may include this tonnage in revised base-level generation if they did not include it in their original base-level generation amount. In addition, the Board is gathering data to prepare regulations for construction and demolition waste.

Chapter 600, Statutes of 1999 (Chesbro, SB 515) allowed the four mine reclamation facilities an exemption from paying the Integrated Waste Management Fee until January 2002. The law also states that an exemption from the fee will not impact what waste counts as disposal and diversion. Therefore, since the permitted inert landfills have reported disposal to DRS since 1995, any disposal at the permitted inert landfills is reported as disposal in the DRS.

Special Waste

Special waste consists of waste types typically requiring disposal in Class II landfills or Class II cells in landfills, such as non-friable asbestos, sludge, auto shredder fluff, petroleum-contaminated soil, and ash. At least 94 landfills accept special waste. Questions arose from the working group regarding non-hazardous wastes disposed and used beneficially. Businesses rather than jurisdictions usually control which facilities receive the materials. Often the lowest bidding facility gets the contract for these wastes, and the disposal site may be hundreds of miles from where the waste was generated. Each regional water quality control board and air district determines if special waste materials may be used beneficially or must be disposed. So the same waste type can count as disposal or diversion depending on the environmental protection regulations in effect at a disposal site. There is no consistent method for tracking these materials.

The laws relating to special waste have changed significantly over the last ten years. Some jurisdictions were not aware of special waste when they originally did their waste generation studies. The inclusion of these waste types in reporting year disposal has been a significant problem for jurisdictions that did not include the waste types in their base-level generation. Some jurisdictions have seen significant drops in their diversion rates due to disposal of special wastes.

There are few diversion opportunities for special wastes, and jurisdictions do not want to be penalized for waste they cannot divert. In March 2001, the Board recognized these inconsistencies and established a policy to allow subtraction of certain special wastes from disposal amounts. To deduct special waste tonnage, jurisdictions must show that the special waste types are tracked at the Class II landfill and that the regional water quality control board, air district, or local control agency requires disposal of the materials.

Before making a decision on how to deal with special waste issues, both jurisdictions and the Board need to consider the diversion impact of not counting special waste as disposal. Only waste types that are disposed can count as diversion. If special waste is removed from disposal, then it could not count as diversion. A number of jurisdictions rely on special waste diversion for ADC in particular. Special waste ADC was more than 350,000 tons in 2000.

Self Haul Study

The disposal reporting system (DRS) working group was concerned with the amount of self-haul tonnage and self-haul traffic at solid waste facilities. Many group members recognized that self-haul customers in cars and small pickup trucks transport only a minimal portion of the total waste disposed while contributing to delays in processing vehicles at landfill gates. The County of Orange Integrated Waste Management Department shared the results of a ten-month study that examined self-haul waste.

The Orange County study tracked the number of self-haul loads per month, the pounds per load, and the total tons per month at the county's three permitted active landfills from May 1998 through February 1999. The results showed that self-haul customers in cars or small pickup trucks only delivered about 1.3 percent of the total tons disposed. Of all the loads brought to the landfill, almost a quarter were attributed to these smaller vehicles. The small vehicle self-haul customers delivered only 12 percent of all self-haul tonnage.

The following table was included in Orange County's study. In this table, loads per month and tons per month were averaged for the three landfills and for the entire county.

Table 4-2. Orange County residential self-haul study

May 1998 - February 1999

	Average LOADS per month			
	Brea	Prima	FRB	Total
Passenger car	**69**	**188**	**20**	**277**
Less than 880 lb P/U truck	**3,759**	**3,756**	**3,871**	**11,385**
	Average TOTAL Tons per Month			
Passenger car	**12**	**34**	**4**	**50**
Less than 880 lb P/U truck	**1,654**	**1,653**	**1,703**	**5,010**

Above survey covers 1.3% of total tons, 24% of total loads.

The study concluded, based on the ten months of data, that if cars and pickup trucks were excluded from the DRS, the county could speed the processing of almost a quarter of the incoming vehicles. Further, the county could omit origin codes on 1.3 percent of the total tonnage at the landfills but would still capture 88 percent of all self-haul tonnage.

Orange County's documented findings supported the contention that the small vehicle self-haul customers contribute little to the overall disposed waste stream, and yet they contribute considerably to delays at the landfill gates. Therefore, the group recommended that self-haul vehicles under one ton should be excluded from the DRS.

Issues and Solutions

The disposal reporting system working group brought a broad range of perspectives to the discussion of the data. The group consisted of members from large and small jurisdictions, waste haulers and facility operators, and waste management consultants. Each was able to provide valuable insight into the variety of factors that affect the issues addressed. The following summarizes the discussion of the issues and identifies the general themes of the proposed solutions.

Waste Hauler Information

One of the primary issues raised was the reliance on waste hauler drivers for origin information. Commercial waste collection practices, especially in areas where jurisdictional boundaries are not easily defined and collection routes cross those boundaries, result in drivers of waste collection vehicles not having an accurate accounting of the origin of their loads. Jurisdiction-of-origin data collected from a more accurate source of information is available through the use of commercial hauler dispatcher-supplied origin data. Over the last several years, computerized record keeping has increased, so there would be less of a burden on waste haulers to supply origin information.

Obtaining accurate information from self-haul is another frequently raised issue, and it was extensively discussed by the working group. Commercial self-haul (for example, remodelers, landscapers, etc.) accounts for the majority of self-haul waste and constitutes approximately ten percent of the overall statewide disposed waste stream. Waste origin accuracy for this sector has been improved in some jurisdictions by requiring business licenses, which provide jurisdictions with a paper trail to aid in resolving origin issues. Residential self-haul, however, comprises a small portion of the waste stream in the more urban areas (and only about 3 percent statewide) but may represent a large portion of the vehicle traffic at disposal facilities.

Orange County conducted a survey in 1998–1999 of self-haul disposed by truck type. The residential self-haul in pickups or cars carrying less than 880 pounds of waste accounted for about one-quarter of all vehicles at the gatehouse but only 1.3 percent of total tons landfilled. It takes considerable time to process the residential self-haul loads, and information may not be accurate.

Obtaining accurate information from residential self-haul drivers is more problematic compared to the commercial self-haul sector. Better public education and verification of origin procedures have improved accuracy, but they are time consuming. Another option considered by the working group would be to only ask origin information of self-haul vehicles larger than a pickup truck.

Scales

In the course of their deliberations, the working group determined that the accuracy of amounts disposed could be improved through the use of scales at all facilities. In 1990, only about one-half of the landfills had scales. A recent survey conducted by the Board indicates that today that number is greater than 90 percent. Recording actual waste weights rather than estimating average weight based on volume would provide a more accurate picture of the disposal stream. However, the working group realizes the cost of implementing the use of scales may be prohibitive to small or rural jurisdictions and may require exemptions for those communities.

Origin Surveys

The working group devoted a considerable amount of discussion to the issue of improving accuracy in allocating waste. The analyses conducted on the DRS information point to several solutions. The consensus of the working group is that the data clearly supports the superiority of daily waste origin surveys over the currently required minimum one week per quarter. A recent Board-conducted survey of selected landfills throughout the state indicates that the number of facilities conducting daily origin surveys is steadily increasing. Requiring daily origin surveys at all facilities would require regulatory change, but it would greatly improve accuracy. The working group understands the problems such a requirement would create for some small rural landfills that operate on the "honor system" without benefit of a gate attendant. Since there are few such rural facilities, and rural counties account for less than five percent of California's waste, making exceptions for them would not severely impact allocation accuracy.

Finally, the working group addressed the issue of disposal data verification. The discussion centered on the inordinate amounts of time and resources needed to verify disposal data reported by facility operators. Several working group members noted that some jurisdictions have a degree of difficulty in extracting the level of cooperation from operators and haulers that would allow them a more timely verification of disputed allocation amounts. They feel that jurisdictions' time could be better spent verifying program implementation and effectiveness rather than "chasing numbers." The working group requests the Board exercise its authority and increase the number of formal facility audits it conducts to assist in obtaining more accurate data. In addition to reconciling disputed allocation numbers, they feel the audits would provide a secondary benefit of impressing upon the operators the importance of well-organized data collection and timely, accurate reporting. Furthermore, the Board should, either through policy or regulation, encourage and/or require better cooperation and more timely reporting of disposal data by facility operators. Such action will help to ease the burden of verification on the jurisdiction. Finally, the working group believes the Board should institute procedures to effect a comprehensive cross-checking of disposal data reported by facilities to both the disposal reporting system and the Board of Equalization.

Regional Approach

The analyses also indicate that the DRS data is more stable when aggregated at the county level, rather than the jurisdiction level. Thus, forming regional agencies would benefit many jurisdictions in satisfying IWMA requirements. The working group realizes, however, that regionalization will not work everywhere. Discussion of the analyses centered around the fact the data indicates that for small rural areas, aggregating disposal information at the county level did not necessarily reduce the variability of the data. Furthermore, they noted that for some larger counties, it is neither economically prudent nor politically feasible to combine all the jurisdictions into one regional agency. However, the working group believes that those jurisdictions that would benefit most from regionalization should be encouraged to do so through the use of newly created incentives.

Standardize What Counts

The group discussed the inconsistencies of how some materials are counted for disposal in different areas of the state. In some cases, different facilities account for the same type of waste in different ways. This is especially true in the ways different facilities track or treat special wastes and ADC. (See previous discussion concerning inert landfills.) The working group concluded that standardized procedures may need to be created, and the definition of solid waste in PRC, section 40191(a) may need to be amended to address these inconsistencies. The working group wants all stakeholders to have input into any changes in the law. The working group also expressed a desire for the Board to support pending legislation that will exclude special waste requiring disposal at Class II landfills from counting as disposal in the disposal reporting system.

Additionally, the working group believes that some jurisdictions are being penalized with lower diversion rates for disposing inerts at permitted landfills while other jurisdictions are rewarded with higher diversion rates for disposing their inerts at unpermitted inert landfills. There is not a level playing field for facilities accepting only inert waste for disposal. Therefore, the group recommends that inerts disposed at mine reclamation facilities, which are not subject to the BOE fee, should be excluded from the DRS reporting.

Enforcement

The final issue addressed by the working group is that of enforcement. The group concluded that currently, jurisdictions have no method to ensure that haulers and facility operators comply with the intent and requirements of DRS data collection and reporting. There is no standardized requirement as to how haulers and facility operators collect, record, maintain, and report disposal data. Thus, haulers and operators institute individual policies and procedures. If the individual policies and procedures fall short of meeting the needs of the jurisdictions, there is little incentive to improve because there is no penalty for this failure. Jurisdictions are hesitant to enact ordinances to ensure the cooperation of their haulers and operators because of the resources required to create, implement, and enforce such ordinances. The working group recommends that the Board provide grants and other incentives to jurisdictions to enact ordinances requiring hauler and operator compliance with the intent to improve DRS data collection and reporting. They believe such action would greatly help to mitigate this issue. Additionally, the working group recommends creating enforcement authority at the State level.

Summary

In summary, the working group concluded that some of the proposed solutions can be accomplished through policy changes at the Board. Others will require regulatory and/or statutory change. Discussions and recommendations from the working groups fell into several broad areas:

- Emphasize diversion programs, not diversion rates – The focus of the system should be on programs, not numbers. The working group believes it is more economically efficient to spend resources on creating and implementing effective programs, rather than attempting to assign disposal tonnage and calculate diversion rates.
- Rural and small jurisdictions bear a disproportionate share of error. The DRS data show that errors are higher for small and rural jurisdictions. The working group agreed that DRS practices and procedures need to be changed for these jurisdictions.

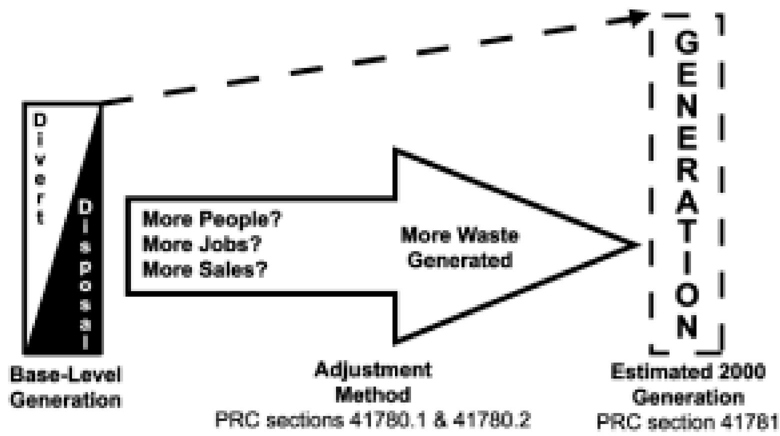
- Promote regional solutions – Preliminary analysis indicates that disposal reporting data is more stable for larger jurisdictions and when data is aggregated to the county level. The working group agreed incentives to regionalize should be increased; disincentives should be removed.
- Increase Board assistance – The working group concluded that the Board should provide increased economic incentives and expand types and numbers of tools available to assist jurisdictions in meeting their goals. Also, the Board should review and remove any of its policies, as well as any other institutional barriers, that may inhibit the development of effective diversion programs.
- Expand disposal reporting system enforcement – Jurisdictions currently have little or no enforcement mechanisms to ensure haulers and facilities provide accurate and timely disposal reporting data. The working group believes the Board should evaluate methods to improve enforcement through oversight activities and increased permitting requirements.
- Resolve special waste issues – Certain materials, such as special waste, are treated differently (disposal vs. non-disposal) at different facilities. The working group suggests the Board take action to remove these uncertainties/inconsistencies and work to standardize how waste is reported.
- Improve/ease reporting – There are a number of causes for inaccurate allocation of disposal to jurisdictions. The working group determined that the Board should work to establish, in statute, statewide standards for the collection and dissemination of waste origin data and due process procedures to address errors in the DRS.

The working group believes that the DRS has given jurisdictions a better understanding of their waste flow and disposal data. The working group also recognizes that the DRS values are only estimates, but they are a useful indicator of a jurisdiction's disposal activity. However, the working group wishes the Board to recognize there is the potential for inaccuracies in the DRS. The primary factors leading to these inaccuracies are the nature of waste disposal, the difficulty in allocating waste at the jurisdiction level, and the lack of enforcement capability. Based on data analyses, the Board believes the disposal reporting system reasonably estimates disposal for most jurisdictions. The Board believes there are ways to address these issues that can result in minimizing their effect.

Chapter 5 Adjustment Method Review

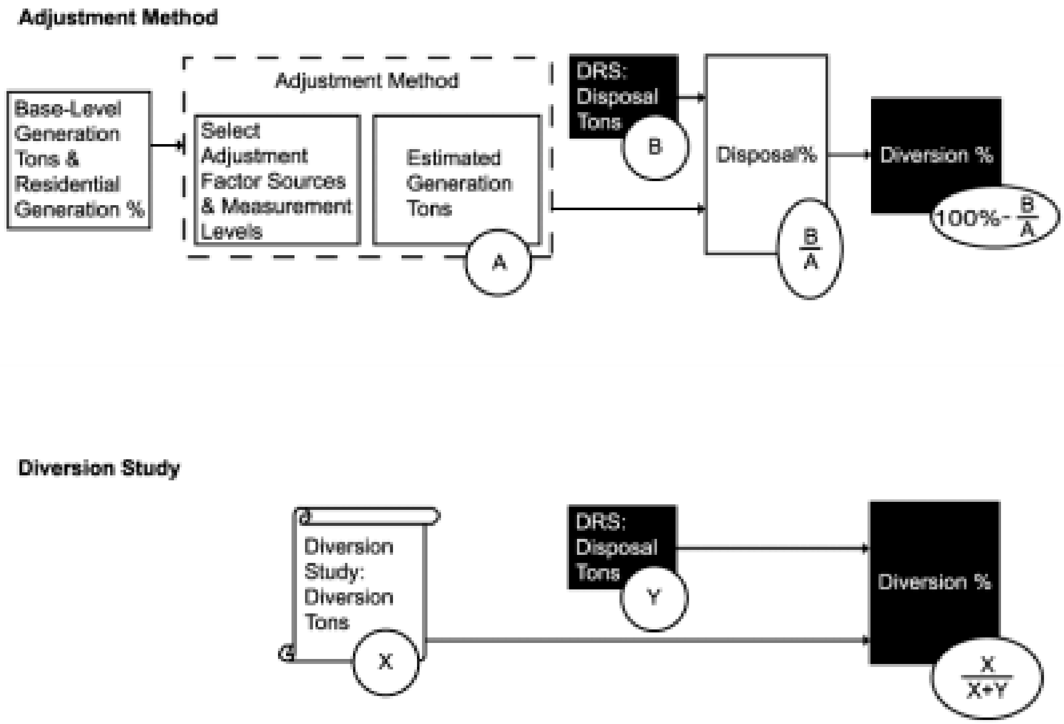
When the California Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989 [IWMA, 1989]) was established, jurisdictions were concerned that through population growth and economic booms their diversion rates would be distorted, thus preventing them from achieving 50 percent diversion. Disposal-based measurement of diversion rates became law in 1993, which further heightened jurisdictions' concerns, and the Board was required to develop a method to adjust for population and economic change and estimate generation (Figure 5-1).

Figure 5-1. Adjustment method concept



Since it is not feasible to determine a jurisdiction's actual diversion rate, it has to be estimated. This adjustment method was considered an attractive shortcut because it estimated a diversion rate without the delays, costs, and difficulties of a diversion study. The adjustment method is an estimation tool that depends on an accurate base-level generation amount. It estimates generation based on jurisdiction change in population, employment, and inflation-adjusted taxable sales since the base-level calculation (14 CCR section 18794 et. seq.). For the adjustment method, the challenge is to reduce potential inaccuracies by continuing to improve it, expanding awareness of its strengths and weaknesses, and using it appropriately. Figure 5-2 shows how the adjustment method fits into the overall disposal-based measurement of diversion rates.

Figure 5-2. Adjustment method vs. diversion study.



A more detailed description of the adjustment method formula (Figures 5-3 through 5-7) to adjust base-level generation tons to arrive at estimated measurement year generation tons is:

1. Determine base-level residential and non-residential generation:
   - Multiply generation tons by residential generation percentage to determine residential generation.
   - Subtract residential generation tons from generation tons to determine non-residential generation.
2. Estimate measurement year non-residential waste generation:
   - Adjust measurement year taxable sales for inflation (Figure 5-3).
   - Average employment and taxable sales change ratios (Figure 5-3) to determine economic change ratio.
   - Multiply economic change ratio by non-residential generation tons (Figure 5-4) to estimate non-residential generation.
3. Estimate measurement year residential waste generation:
   - Average population and economic change ratios (Figure 5-5) to determine demographic change ratio.
   - Multiply demographic change ratio by residential generation tons (Figure 5-6) to estimate residential generation.
4. Add steps 2 and 3:
   - Add estimated non-residential waste generation to estimated residential waste generation (Figure 5-7) to estimate total measurement year generation.

Figure 5-3. Calculating the economic change ratio.

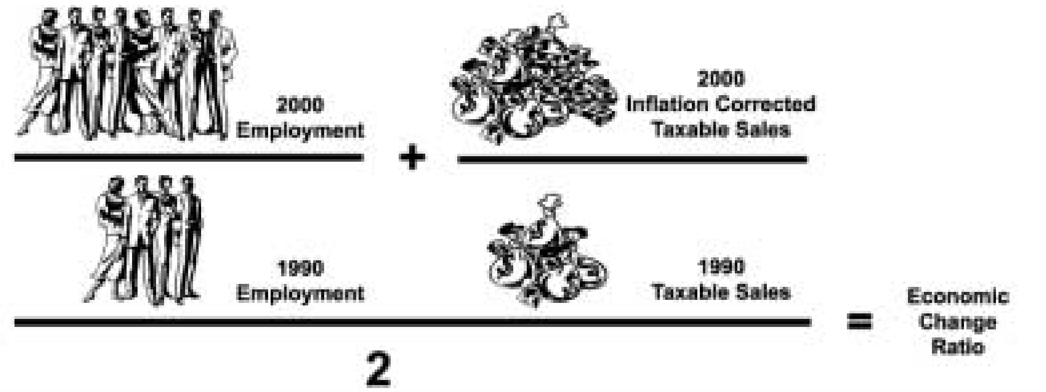


Figure 5-4. Estimating measurement-year non-residential generation.

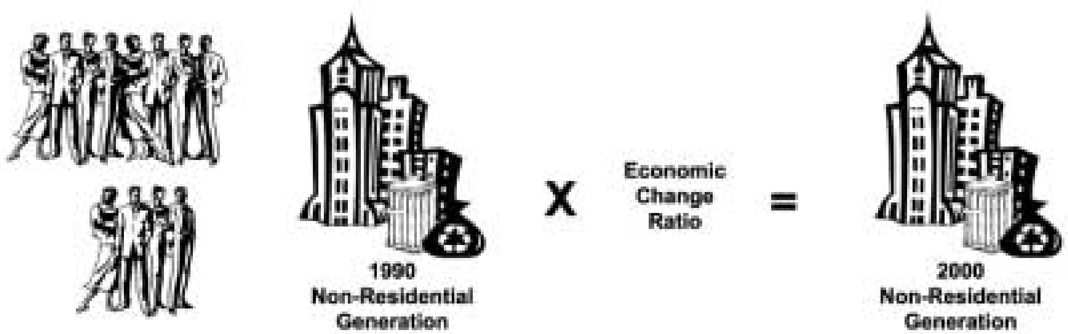


Figure 5-5. Calculating the demographic change ratio.

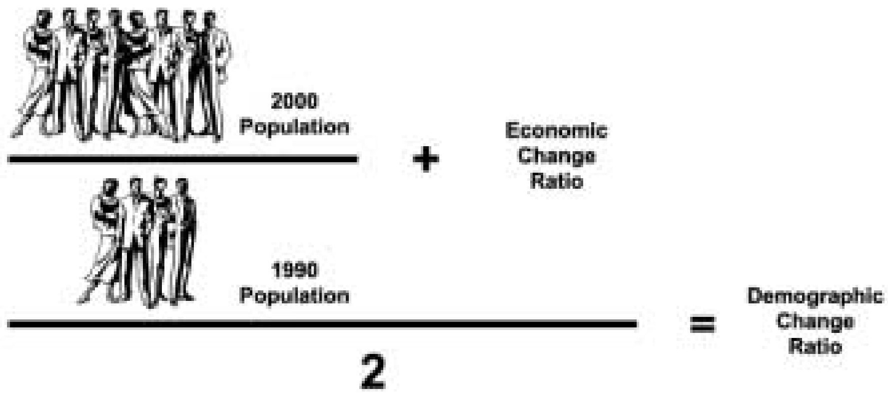


Figure 5-6. Estimating measurement-year residential generation

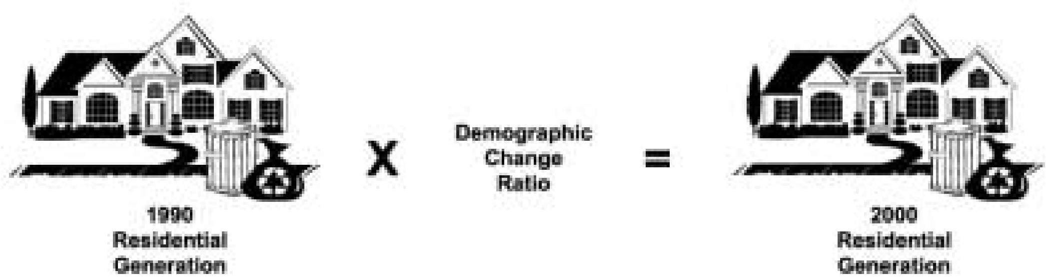


Figure 5-7. Calculating estimated measurement-year non-residential and residential generation.

Two diversion rate estimate steps follow the adjustment of base-level generation tons: calculating the disposal rate and the diversion rate. The disposal rate is determined by comparing disposal to the adjustment method's estimated waste generation; that is, divide disposal by estimated generation (Figure 5-8). The diversion rate is then determined by subtracting the disposal rate from 100 percent (Figure 5-9).

Figure 5-8. Calculating the measurement-year disposal rate.

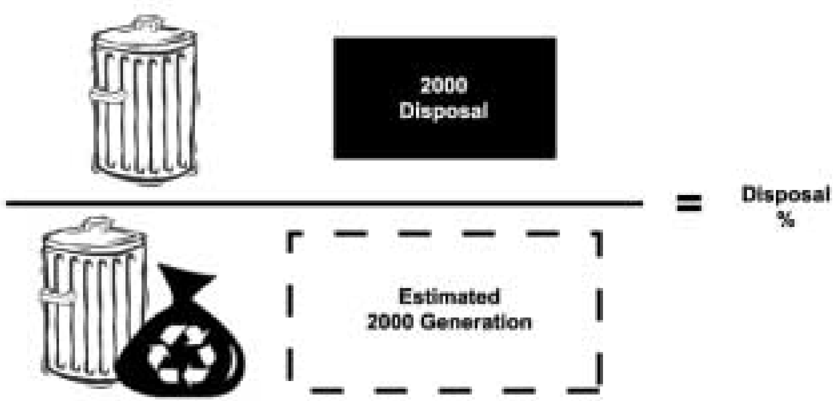
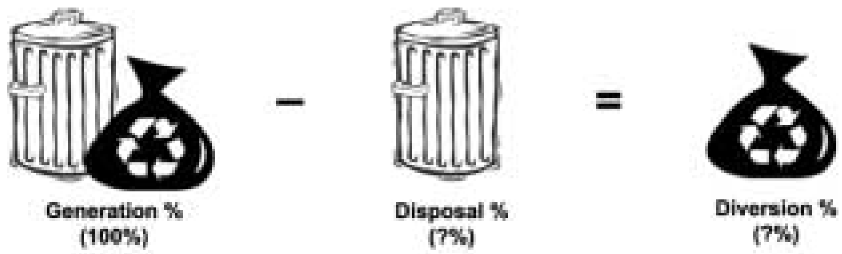


Figure 5-9. Calculating the diversion rate.



The adjustment method treats residential waste differently than non-residential waste, as these sectors respond differently to changes.

Many factors were tested to determine what set of factors and what formula best estimated solid waste generation. The cost of using the adjustment method was minimized using readily available data.

Diversion rate accuracy depends on the interaction of the base-level generation amount, the adjustment method, and the measurement year disposal amount. The adjustment method does not correct an inaccurate base-level generation or measurement year disposal amount (Appendix B, Meeting 1, *Adjustment Method Overview*). At its April 2001 meeting, the Board approved a diversion study guide for collecting complete, accurate data to establish a new base-level generation amount (CIWMB, *Conducting A Diversion Study: A Guide For Local Jurisdictions*, 2001). An earlier section of this report covered the disposal reporting system and how measurement year disposal amount accuracy may be improved.

Adjustment Method Analysis and Issues

The working group examined potential alternative data for each factor (Appendix B, Meetings 1, 2, and 3). No other source for population data was identified that covers each jurisdiction. One concern identified for future work is the impact of 2000 census data on the population ratio: this needs to be investigated further as the census data becomes available.

Use of the State Board of Equalization's (BOE) taxable sales as an economic indicator was also discussed at length. Taxable sales do not include several types of activities that impact the economy such as wholesale transactions, food, housing, prescription medicine, and transportation. Despite these limitations, there is no other data source that provides uniform economic data (closely related to waste generation) for each jurisdiction.

The working group also analyzed alternative ways to adjust taxable sales to account for inflation. The adjustment method currently uses the consumer price index (CPI) to adjust for inflation. This raises issues because the CPI includes some activities that are not included in taxable sales. Another potential option that might be better aligned with taxable sales is BOE's taxable sales deflator. More research in collaboration with BOE is needed to determine if it is appropriate to use this deflator in the adjustment method formula.

There are many alternative sources of employment data. The Board's current default employment factor (Employment Development Department labor force employment) was selected because it was the only data source available for each county. Labor force employment reflects the number of county residents that are employed. Jurisdictions most affected by use of this data have residents who commute to jobs in other counties or have jobs held by residents of other counties.

To examine the impacts of using alternative employment data, 1999 diversion rates were calculated using default and the alternative data. Then the diversion rates were compared.

State Labor Force vs. Industry Employment

State labor force data, the current default factor, reflects employment of individuals by "place of residence," whereas state industry employment data reflects jobs by "place of work" (Appendix A, Employment Development Department, *Employment by Industry Data Compared to Employment Data in Labor Force Statistics*). According to the Employment Development Department, "In most geographic areas, the difference between the employment in labor force statistics and the industry employment is minimal. However, in areas such as Ventura County, where a large portion of the residence population commutes to Los Angeles County to work, Labor Force Employment can be almost 100,000 people higher than [Industry Employment]." Industry employment data for a given year is not available for every jurisdiction in California until at least the end of August the subsequent year. Ninety-two percent of jurisdictions had less than three percentage points difference in their 1999 diversion rate when state industry employment was substituted for labor force employment. The majority of the 35 remaining jurisdictions that had greater difference in their 1999 diversion rate were small jurisdictions.

State Labor Force vs. Federal Industry Employment

The federal government also collects industry employment data. U.S. Department of Labor, Bureau of Economic Analysis industry employment reflects jobs by "place of work." Ninety percent of jurisdictions had less than three percentage points difference in their 1999 diversion rate when federal industry employment was substituted for state labor force employment. About half the 40 remaining jurisdictions that had a greater difference in their 1999 diversion rate were small jurisdictions.

Unusual Extremes of Population, Employment, and Taxable Sale

Adjustment method testing in 1993–94 showed that the method was less accurate for certain types of jurisdictions. This was confirmed during the review of the adjustment method. If a jurisdiction has an extremely low residential population, then the adjustment method formula weight given to population may not be accurate. Also, the method weights employment and taxable sales equally. If this weighting does not reflect the jurisdiction's characteristics, the adjustment method estimate will be less accurate (Appendix B, Meeting 2, *Subject: Margin of Error for Adjustment Methodology Annual Generation Tons*). Heavily industrial jurisdictions are likely to have high employment and low taxable sales since the goods are sold wholesale and are not subject to sales tax, so adjustment method factor weighting can be an issue.

Modifying the Adjustment Method Formula

Another option analyzed was changing the adjustment method formula to apply the number of employed residents to the residential portion of the method and the number of people employed to the non-residential portion of the method. Ninety-five percent of jurisdictions had less than three percentage points difference in their 1999 diversion rate using the modified formula. Most of the remaining 20 jurisdictions that had a greater difference in the 1999 diversion rate were small jurisdictions. A change to allow jurisdictions the option to use this formula will require regulations revisions.

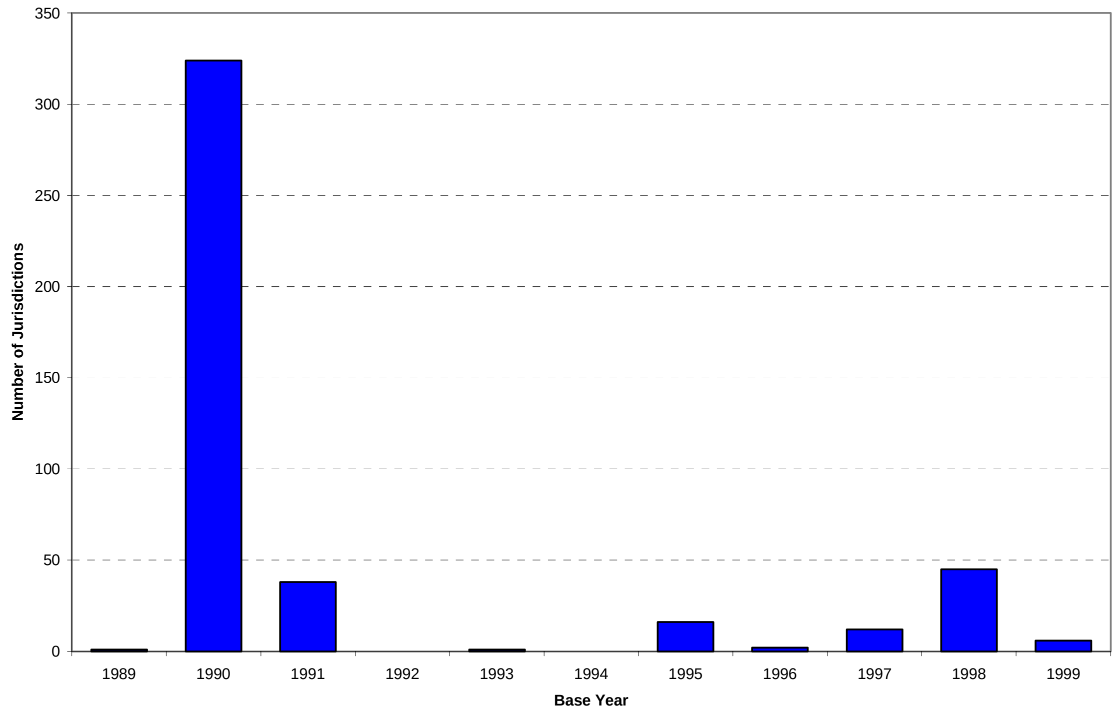
Statistical Analysis

Several issues were identified when the adjustment method working group discussed the feasibility of conducting a new statistical analysis of the adjustment method similar to the analysis done in 1993–94. The most serious issue is lack of actual waste generation data, or a valid proxy, to compare with adjustment method results. Without this data, a statistical analysis to determine adjustment method accuracy cannot be completed. The data would need to be gathered from many jurisdictions over a period of four years at an estimated cost of several million dollars. Because of these issues, the working group does not recommend a new statistical analysis.

Old Base-Level

The adjustment method depends on the accuracy of base-level generation and on whether a jurisdiction's base-level generation amount has become inaccurate due to change in the amounts and types of waste currently produced. With unbalanced jurisdiction population and economic change, or a significant shift in the types and quantities of residential and/or non-residential solid waste produced, a base-level generation amount will eventually need replacement. Estimated diversion rates will be more affected by an old inaccurate base-level generation amount than by choice of adjustment method factors. More than 70 percent of jurisdictions have a 1990 base-level generation amount (Figure 5-10).

Figure 5-10. Jurisdiction base-level dates.



Unbalanced Growth

The factors used in the adjustment method will change over time, but they may not all increase or decrease, and they may not change at the same rate (Figures 5-11 and 5-12). Disparity in adjustment factor growth rates of 20 or more percentage points is unbalanced growth. About 150 jurisdictions have unbalanced adjustment method factor change for 1999.

If change in population, employment, and taxable sales are not approximately the same, then the solid waste stream is probably much different than it was in 1990. If population growth has outstripped employment and taxable sales, the jurisdiction waste stream may now be more similar to a bedroom community. If taxable sales increase significantly, and both population and employment remain constant, the non-residential waste stream may now be radically different. For example, a city with a 1990 base level selects 2000 adjustment method factors and finds that in 10 years it had six percent employment growth and 42 percent taxable sales growth.

Figure 5-11. Statewide adjustment factor change since 1990.

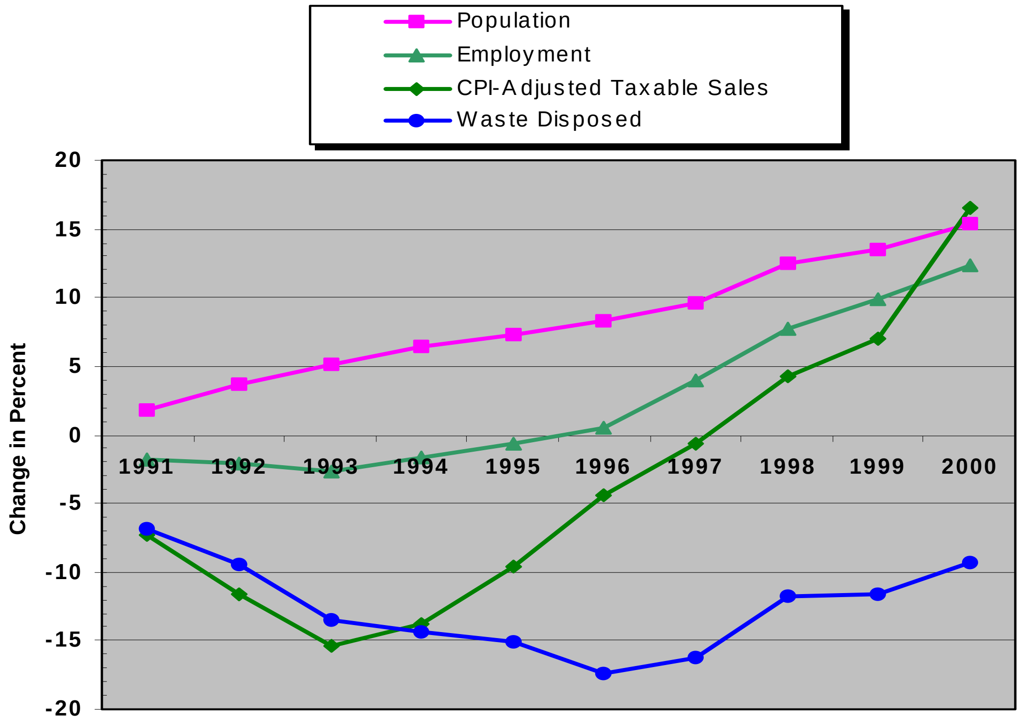
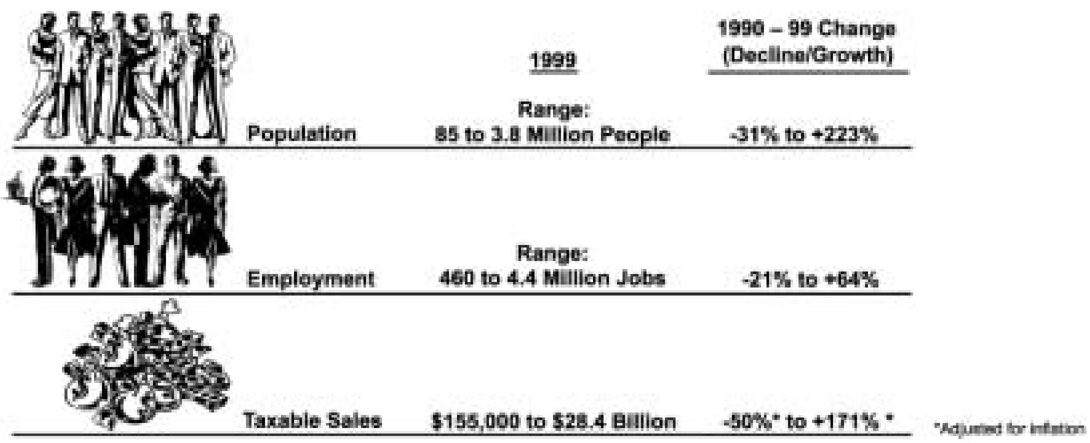


Figure 5-12. Jurisdictions: diverse and dynamic.



Substantial Growth

The adjustment method was developed in 1993–94 using factors that had a maximum growth rate of 14 percent. The growth rates were balanced. Although exceeding 14 percent balanced growth does not necessarily mean a new base-level generation amount must be established, the statistical accuracy of the adjustment method steadily declined as the balanced growth rate increased from two percent to fourteen percent (Appendix B, *Interactions Between The Adjustment Method, Base-Year Generation, & Report-Year Disposal*). However, balanced growth between 1990 and 2000 is rare. What is more common is unbalanced growth. Before deciding to establish a new base-level generation amount, other factors ought to be considered, such as jurisdiction size, adjustment factor selection, change in business types and business wastes, and DRS error.

Margin Of Error

The adjustment method working group considered the feasibility of calculating a "margin of error" for adjustment method waste generation estimates. Due to potential error in jurisdiction base-level generation studies and in the adjustment method, it is not possible at this time to obtain a margin of total error (Appendix B, Meeting 2, *Subject: Margin of Error for Adjustment Methodology Annual Generation Tons*).

Solutions

Based on the analyses performed, the adjustment method works well for most jurisdictions if:

1. Base-level waste generation characteristics reasonably reflect the nature of measurement year waste generation.
2. Jurisdiction size is medium to large.
3. Jurisdiction characteristics are not exceptional.
4. Population and economic factor measurement levels selected are the most representative.
5. Measurement year disposal is accurate.
6. Measurement year disposal corrections are accurate for: disaster and treated medical waste, regional diversion facility residual waste, sludge and out-of-state export subsequently diverted, and transformation or biomass conversion diversion credit.

Given these conditions, the adjustment method may be used with reasonable confidence. Accordingly, the synthesis group recommends the default adjustment method factors be retained and the default employment factor be expanded to an "either/or" labor force employment (where people live) or industry employment (where people work). This does not require regulations change.

Small Jurisdictions

Data presented in the DRS review shows there are more errors for jurisdictions with population less than 25,000, or for those with annual disposal less than 25,000 tons, or for countywide disposal of less than 60,000 tons. For year 2000, about 40 percent of all jurisdictions meet at least one of these criteria. The adjustment method formula is not designed to compensate for errors in measurement year disposal. Analysis of alternative adjustment method factors shows that small jurisdictions are more likely to be impacted by the choice of a factor. Relative to large jurisdictions, small jurisdiction measurements will tend to be less accurate if the same measurement tool is used. There are ways to improve goal measurement for a small jurisdiction.

However, none change the adjustment method formula:

- Use more accurate local adjustment method factor values.
- Form a regional agency so that regional adjustment method factor values will be used.
- Establish a new, more accurate base-level generation amount and apply the adjustment method.
- Perform a generation study to determine a yearly diversion rate.

Base-Level Generation

One difficulty faced by jurisdictions and decision-makers is how to fairly assess the accuracy of a diversion rate estimate given the many variables and the potential for inaccuracies involved (Figure 5-2). Stated differently, how should an estimated diversion rate be weighted in comparison to diversion program information? Another issue is how to determine when a jurisdiction base-level generation is so inaccurate that it adversely affects the diversion rate estimate. In other words, when is an old base-level generation amount too old? The Board staff and working group have different recommendations regarding old base-level generation. The synthesis working group does not believe the testing limits warrant establishing criteria for when to examine whether base-level generation still reflects the jurisdiction characteristics. Board staff and the adjustment method working group believe jurisdictions with growth rates beyond the tested level should examine base-level generation and explain why the base level is still valid (for example, number and type of business waste generators have remained the same, balanced growth in adjustment method factors, residential percent of waste stream is the same). If there is significant change, establishing a new base level should improve accuracy.

Increased Jurisdiction Flexibility To Use Alternative Source Factors

The working group recommends optional use of a few potentially viable alternative source adjustment method factors in place of the default state labor force employment factor. These alternative employment measures are nearly identical to the default factor for most jurisdictions (Appendix B, Meeting 2, *How Do Alternative Employment Measures Affect 1999 Diversion Rates?).*

Must Comply With Regulations

1. County-level federal industry employment.
2. Third-party private sector employment data.
3. City-level state industry employment (see item 2 below).
4. Jurisdiction employment data from business licenses.

Requires Regulations Change

1. County-level state labor force employment for demographic change ratio, county-level state industry employment for economic change ratio.
2. City-level state industry employment if 1991 data is substituted for 1990 base-level data.

Increase Training and Improve Tools and Assistance

While the Board must consider approval of alternative source adjustment method factors, more complete data may be published to assist jurisdictions and the Board. The working group recommends the Board expand its *Adjustment Method Factors* Web page to identify known potential alternative sources for adjustment factors. The group also recommends listing each annual report alternative source adjustment factor proposal with information on the biennial review outcome (Appendix A, *Adjustment Method Factors*). The end result may be a higher success rate for new alternative source adjustment factor proposals, increased jurisdiction flexibility, and more efficient Board staff review and biennial review hearings.

The need to expand awareness of adjustment method strengths and weaknesses is supported by working group recommendations to conduct public workshops and publish data on:

1. Inherent limits of base-level generation amounts, adjustment method formula, and measurement year disposal amounts
2. Steps jurisdictions may take to understand the adjustment method.
3. Jurisdiction alternative adjustment factor proposal outcomes.
4. Economic activity reflected in taxable sales.
5. Error in state estimates of taxable sales.

Additional Work Needed

The working group recommends the Board:

- Publish information on what economic activities are included in state taxable sales.
- Publish information on the extent and scope of errors in Board estimates of fourth quarter taxable sales.
- Do more statistical analysis of adjustment method formula accuracy, including factor weights, long-term accuracy, and interrelationships between independent variables.
- Monitor 2000 Census data impact on state population estimates.
- Research merits of using CPI alternative in adjustment method formula.
- Publish information on inherent limits of base-level generation amounts, adjustment method formula, and measurement year disposal.
- Publish steps jurisdictions may take to understand adjustment method.
- Conduct public workshops on an ongoing basis.

More Research

The synthesis group also recommends more research on weighting of formula components comprising the adjustment method formula, the 2000 Census data impact on state population estimates and subsequent measurement-year diversion rates, and an alternative inflation measure. Although the synthesis group does not recommend the Board require jurisdictions to establish a new base-level generation amount given specified circumstances, it does acknowledge the need for accurate base-level generation amounts by recommending the Board provide economic incentives or funding for cooperative solid waste generation studies to establish new jurisdiction base levels. If a jurisdiction is dynamic, its base-level generation amount may no longer be useful when estimating measurement year generation.

Evaluating Diversion Rate Accuracy at Biennial Review

A key working group recommendation is to provide the Board information on potential inaccuracies and allow the Board to take a tiered approach to evaluating diversion rate accuracy at the biennial review. This tiered approach places jurisdictions into one of several diversion rate accuracy categories based on accuracy indicators (or red flags) that concisely profile a jurisdiction's potential diversion rate estimate error. It should help clarify how much emphasis to place on the diversion rate estimate vs. diversion program information and provide the Board with data needed to make equitable biennial review decisions.

Summary

The adjustment method is an estimation tool that works reasonably well for most jurisdictions. Base-level generation tonnage must be accurate as well as reflect the nature of solid waste produced. Disposal tonnage must also be accurate. Since each jurisdiction's diversion rate is an estimate, the Board should have information on potential accuracies indicators in diversion rate measurement red flags as it considers biennial reviews. Alternative source adjustment method factors seem to help the most if the jurisdiction is small or has unusual extremes of population, employment, and taxable sales. Further statistical analysis is needed to determine if entirely new adjustment method factors and weights would improve the accuracy of the adjustment method formula. Expanded dissemination of existing information and publication of new study results should improve adjustment method understanding and application.

Chapter 6 Review of Alternatives to the Existing System

Historical Perspective

Various ideas on diversion rate measurement methods and diversion requirements, as well as ideas on which entities should be responsible for meeting requirements, have been debated since the late 1980s when the legislature and interested parties crafted the Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989 [IWMA, 1989]). Additionally, many alternatives to the diversion rate measurement system were debated in 1992 prior to, and as part of, the development of Chapter 1292, Statutes of 1992 (AB 2494, Sher), which switched to a disposal-based diversion rate measurement system. Some of the alternatives included below reflect those earlier discussions.

Framework for Considering Alternatives

As the goal measurement system has been implemented over the years, issues have been identified concerning the accuracy and efficacy of the system. Potential ways to address these issues have also been identified. These range from minor or major adjustments in the present system to perhaps completely different systems designed to meet waste reduction and resource conservation goals in new ways. When one considers the possibility of wholesale changes to the system, the following questions can be considered:

- Does the system measure the *right things* to provide information on diversion progress?
- Does it measure these things in the *right way* to provide an accurate picture of diversion?
- Is the measurement data being used in the best way?
- Do the measurements truly reflect the diversion occurring in local jurisdictions?
- Are resources being used in the appropriate ratio for both implementing diversion programs and assessing the results of the programs?

The alternatives working group developed recommendations on how to improve the measurement system to make it more accurate, more flexible, and more conducive to shifting resources from measurement to program implementation. Additionally, the alternatives working group chose to make recommendations that are not directly related to the measurement system but that could improve meeting the goals and spirit of the California Integrated Waste Management Act (AB 939, Sher, Chapter 1095, Statutes of 1989 as amended [IWMA]). Throughout the process, ideas to improve diversion were held to be equally important as ideas to improve measurement. The group agreed upon the following two "mission statements":

- Consider alternatives to the way the State determines compliance with the IWMA.
- Consider alternative ways to meet the goals of the IWMA.

Alternatives Issues

While CIWMB has been discussing the diversion rate measurement system during the past few years, various stakeholders have raised the following issues. These issues were the basis for developing the proposed alternatives considered.

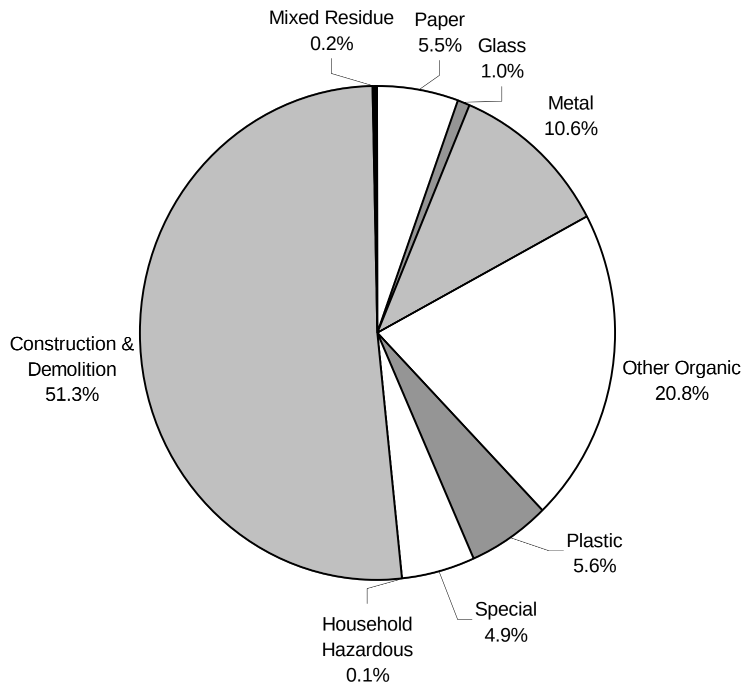
1. Due to the diverse conditions in climate, population, urbanization, and economic and other factors, California's waste stream is complex and can be difficult to measure accurately at various locations under various conditions. It can be especially difficult to track waste origin to within specific city or unincorporated county areas due to complicated jurisdiction borders, the position of many jurisdictions contiguous to one another in a small area, hauling routes crossing jurisdictional boundaries, or businesses and individuals hauling waste to disposal facilities themselves.
2. Rural areas are especially affected by errors in measurement because of low overall tonnage amounts. Rural jurisdictions tend to have fewer resources for public services such as IWMA compliance, and a disproportionate amount of these resources may end up being spent addressing measurement problems.
3. For larger jurisdictions, as well as smaller ones, measurement activities can take resources away from diversion program implementation. However, measurement is necessary to assess progress. The right balance needs to be struck between resources spent on implementing programs and those spent on measuring the success of those programs.
4. It may be less costly and more effective to measure compliance with IWMA goals in a different way. For example, in the current diversion rate measurement system, disposal amounts are the only information on the waste stream that is truly measured. The alternatives considered included: can a new measurement system be devised that takes advantage of measuring disposal amounts and perhaps the types of materials being disposed that will move us further toward the goals? Or should jurisdictions be held to different goals based on the nature of their local waste streams? Should use of landfill capacity be the measurement standard?
5. Markets for materials that are diverted are critical for the success of programs. More diversion might be achieved if there were more emphasis and resources spent on market development than on waste stream measurement.
6. Although jurisdictions bear the responsibility of meeting IWMA goals, they do not have control over all the waste generated within their borders. More parties, such as large waste generators or product manufacturers, should be included in the circle of responsibility for the waste they produce.
7. More diversion might occur by providing incentives to divert, rather than imposing penalties for not diverting. Positive reinforcement may be more effective than negative reinforcement.

Data Analysis

For many of the concepts considered by the alternatives group, no current data exists or can be developed because the ideas deal with new ways to measure or are broader concepts. However, for some ideas, data exists that can aid in assessing impact on the measurement system. The group considered pertinent data contained in the information for the disposal reporting and adjustment method working groups. Two additional types of data reviewed by the alternatives group are found below.

One of the solutions proposed by the alternatives working group is to expand responsibility for diverting waste beyond cities and counties by requiring disposal facilities to divert waste from self-haulers (disposers whose primary business is not hauling waste, such as landscapers). The Board conducted a statewide waste disposal characterization study in 1999 that included the self-haul waste stream. Statewide, self-haul accounts for about 4.7 million tons or 13.1 percent of the waste stream (10.5 percent from commercial sources and 2.6 percent from residential), but this can vary widely from jurisdiction to jurisdiction. The figure below shows an overview of the composition of the self-haul waste stream. Table 6-1 shows the top ten materials typically found in self-hauled waste, and Table 6-2 shows the sources of self-haul waste statewide. Again, this can vary greatly at the local level.

Figure 6-1. Overview of statewide overall self-haul waste, 1999.



Source: CIWMB, Statewide Waste Characterization Study, Results and Final Report, 1999.

Table 6-1. Most prevalent materials in overall self-haul waste.

Material Type	Est. Pct.	Est. Tons	Cumulative Pct.
Lumber	19.2%	894,304	19.2%
Remainder/Composite Construct. & Demolition	10.6%	491,760	29.8%
Remainder/Composite Organic	8.2%	379,753	38.0%
Other Ferrous Metal	6.7%	312,257	44.7%
Concrete	6.7%	311,396	51.4%
Gypsum Board	5.5%	254,298	56.8%
Pruning & Trimmings	5.4%	250,685	62.2%
Asphalt Roofing	5.4%	249,748	67.6%
Leaves & Grass	4.0%	185,816	71.6%
Bulky Items	3.9%	182,372	75.5%

Source: Statewide Waste Characterization Study, Results and Final Report, CIWMB, 1999.

Table 6-2. Sources of statewide overall self-haul waste, 1999.

Source	Percent of Self-Haul Waste Stream, Statewide, 1999	Percent of Total Waste Stream, Statewide, 1999
Residential	19.8	2.6
Commercial – C&D activities	34.3	4.5
Commercial – Roofing	8.4	1.1
Commercial – Landscaping	6.9	0.9
Commercial – Other	31.3	4.3
TOTAL	100%	13.1%

Source: Statewide Waste Characterization Study, Results and Final Report, CIWMB, 1999.

Other alternatives considered by the working group would allow all jurisdictions in a county to jointly measure diversion. Table 6-3 contains preliminary information on diversion rates taking counties as single entities; that is, all cities in the county and the county unincorporated area are treated as one "all-county" jurisdiction.

Diversion rates shown below are based on information readily available to the Board, not on information submitted in each jurisdiction's 1999 annual report. This consists of DRS data reported for each jurisdiction in 1999 by the counties and does not include any corrections that may have been submitted by jurisdictions in their 1999 Annual Reports. It also consists of the default adjustment method factors and does not include any alternate factors that may have been submitted by jurisdictions in their 1999 Annual Reports.

Preliminary diversion rate calculations for 1999 show that only 7 of the 58 counties would be at or above 50 percent diversion if measured this way. Only 20 would be at or above 45 percent.

Table 6-3. Preliminary calculations for 1999 all-county diversion rates.

For details on how rates were calculated, see Appendix C, Alternatives Working Group, "Expanded Information To Assist Working Group Members In Evaluating Alternatives," information for Alt 1-a-1.

County	1999 County-wide Diversion Rate	Number of Juris-dictions in County*	Number of Juris-dictions Over 50%	Number of Juris-dictions Under 50%	County	1999 Countywide Diversion Rate	Number of Juris-dictions in County*	Number of Juris-dictions Over 50%	Number of Juris-dictions Under 50%
Alameda	42%	15	6	9	Orange	49%	32	12	20
Alpine	52%	1	1	0	Placer	30%	7	1	6
Amador	60%	1	1	0	Plumas	34%	2	0	2
Butte	32%	3	0	3	Riverside	49%	25	8	17
Calaveras	36%	2	0	2	Sacramento	35%	5	1	4
Colusa	43%	1	0	1	San Benito	10%	1	0	1
Contra Costa	31%	15	2	13	San Bernardino	39%	25	4	21
Del Norte	45%	1	0	1	San Diego	45%	19	3	16
El Dorado	39%	3	0	3	San Francisco	32%	1	0	1

County	1999 County-wide Diversion Rate	Number of Juris-dictions in County*	Number of Juris-dictions Over 50%	Number of Juris-dictions Under 50%	County	1999 Countywide Diversion Rate	Number of Juris-dictions in County*	Number of Juris-dictions Over 50%	Number of Juris-dictions Under 50%
Fresno	34%	16	6	10	San Joaquin	28%	8	2	6
Glenn	49%	1	0	1	San Luis Obispo	49%	2	1	1
Humboldt	56%	8	3	5	San Mateo	34%	21	1	20
Imperial	71%	8	1	7	Santa Barbara	44%	8	3	5
Inyo	41%	1	0	1	Santa Clara	46%	16	5	11
Kern	46%	12	7	5	Santa Cruz	35%	5	1	4
Kings	41%	2	0	2	Shasta	49%	2	1	1
Lake	17%	3	0	3	Sierra	29%	1	0	1
Lassen	54%	1	1	0	Siskiyou	44%	1	0	1
Los Angeles	40%	89	22	67	Solano	49%	8	6	2
Madera	35%	3	0	3	Sonoma	37%	1	0	1
Marin	42%	1	0	1	Stanislaus	38%	10	1	9
Mariposa	31%	1	0	1	Tehama	46%	1	0	1
Mendocino	21%	5	0	5	Trinity	66%	1	1	0
Merced	43%	1	0	1	Tulare	46%	5	1	4
Modoc	39%	2	0	2	Tuolumne	48%	2	1	1
Mono	41%	2	1	1	Ventura	55%	11	3	8
Monterey	35%	13	4	9	Yolo	41%	5	0	5
Napa	36%	4	1	3	Yuba/ Sutter	26%	1	0	1
Nevada	44%	4	2	2	**Totals**		**445**	**114**	**331**

* One jurisdiction in county indicates a regional agency.

Description of Solutions Proposed by the Alternatives Working Group

During the course of the working group meetings as ideas were researched, evaluated and discussed, some of the alternatives were combined, some were changed, and some were deemed to be ideas that did not clearly improve the measurement system and were not forwarded to the synthesis group. Brief descriptions of the solutions that were forwarded are found below. For all the ideas considered, more detailed descriptions and information on evaluating them were developed by Board staff and working group members. These can be found in Appendix C, Alternatives Working Group, in the two documents entitled "Expanded Information To Assist Working Group Members In Evaluating Alternatives," and "Priority List Statements of Alternatives Organized by Draft Priority Ranking."

Regional Approaches

1. Increase incentives, and decrease disincentives, for forming regional agencies.
Jurisdictions are allowed to work together by forming a regional agency (RA) to measure and report diversion and disposal numbers as one entity instead of by individual jurisdiction. The Board must

approve a joint powers agreement for each RA, which must include a description of the method by which any fines imposed by the Board will be allocated among the participating jurisdictions.

Analyses conducted for the disposal reporting system group and the adjustment method group showed that the diversion rate measurement system tends to be more accurate at the regional level than the individual jurisdiction level. RAs take advantage of this increased accuracy and save time, effort, and resources spent for measuring and reporting by individual jurisdictions. RAs can also take advantage of economies of scale to reduce costs of implementing diversion programs. The 22 Board-approved RAs, containing 106 jurisdictions, have taken advantage of this approach.

Significant disincentives exist for this approach. The strongest may be fines. The total potential fine is $10,000 per member jurisdiction per day, and the RA must determine how fines will be allocated among the jurisdictions should the RA not meet compliance. This requirement tends to cause members of the RA to want to track disposal amounts and diversion rates for each member jurisdiction, so that an under-performing jurisdiction may be identified if goals are not met. This individual tracking negates many of the advantages of RAs. Also, some county unincorporated areas may wish to participate in more than one regional agency, but they would be liable for fines as described above in *each* RA they join.

Specific incentives could include: allowing diversion rates less than 50 percent; waiving penalties for member jurisdictions which fully implement their approved source reduction and recycling element programs; reducing potential maximum fines; new grants or loans specifically for RAs; and preferences to RAs for existing Board grants and loans. Some of these incentives would require statutory and/or regulatory changes.

2. Verify Program implementation at the jurisdictional level. If all jurisdictions within the county are implementing programs, and all jurisdictions agree to be counted together, then they may use the countywide diversion rate.
Currently, if jurisdictions wish to measure diversion rates together with other jurisdictions, they must form a regional agency (see discussion above). This solution would also allow jurisdictions to take advantage of the increased accuracy and efficiency of measuring at the county level. However, it allows them to avoid the often problematic issues of entering into a joint powers agreement and allocating fines. This alternative would allow jurisdictions to return to individual measurement if not all jurisdictions meet the requirements or not all want to measure jointly. Individual jurisdictions would still be held accountable for local program implementation. This approach simplifies reporting to the Board, thus reducing both local government and Board staff time dedicated to determining compliance with the IWMA.

Use Program Implementation and Success to Determine Compliance.

1. From a Board-established menu of diversion programs, jurisdictions would choose those appropriate for local implementation. Jurisdictions would submit a document describing their diversion programs—which must be certified by the Board as adequate—to be audited and monitored by Board staff. The Board would establish evaluation criteria for diversion programs on which jurisdictions must report annually, such as program guidelines, monitoring for effectiveness, and proof of implementation. This would be an alternative way for jurisdictions to demonstrate compliance with the IWMA. It would not affect implementation of the DRS.
The Board's method of determining compliance with the IWMA includes both assessment of the diversion rate and determination of whether adequate diversion programs have been implemented. Many jurisdictions are concerned that there is too much emphasis on the numerical achievement of a diversion rate, especially when the measurement system can potentially significantly under- or overestimate the rate. This emphasis causes jurisdictions to expend significant resources on tracking numbers, addressing

measurement errors which may be difficult to resolve, or on documenting diversion amounts for new base-level studies. These resources could be better spent on program implementation.

This solution would allow jurisdictions the option to demonstrate compliance solely through meeting requirements for program implementation, and no diversion rate would be calculated. By shifting the emphasis to development, implementation, and monitoring of diversion programs, significant resources each year can be shifted from measurement to implementation, resulting in higher overall diversion. Also, this option allows jurisdictions with very difficult diversion rate measurement problems to move forward toward achieving greater diversion despite these measurement problems. This solution would require regulatory and statutory changes, and it would be critical for the Board to develop a fair and effective method to assess diversion program success and enforce implementation. Assessing diversion programs may result in significant resources focused on diversion program measurement. It may not reduce the time and resources a jurisdiction spends on preparing its annual report to the Board.

2. In addition to existing statutory provisions for rural reductions, allow rural jurisdictions to demonstrate Integrated Waste Management Act compliance based on local program implementation and effectiveness, instead of basing compliance on data that may contain errors that are difficult to resolve or require a new base level study to correct.

Rural jurisdictions contribute less than five percent of all waste disposed in California. However, errors in measuring disposal and in calculating waste generation are especially detrimental for rural jurisdictions' diversion rates. Waste allocation errors within the DRS impact small jurisdictions with small disposal tonnages proportionally more than large jurisdictions with large disposal amounts. Additionally, demographic and economic data for individual small jurisdictions that is used in the adjustment method may also be proportionately less accurate.

Moreover, if the limited resources of small, rural communities are focused on quantifying generation or diversion or on investigating errors in the current measurement system, the issues may be resolved only for a short time and variations in future estimates may lead to the same problems. If the limited resources are focused on implementing, expanding, and improving rural diversion programs, more actual diversion of waste will occur, whatever variability or errors occur in waste measurement from year to year.

Because even small errors in measurement can have big impacts on small jurisdictions, it may be more effective and efficient to judge smaller jurisdictions by the number, type, and effectiveness of the waste diversion programs they implement. The Board would need to devise criteria to measure the effectiveness of diversion programs.

The alternatives working group advocated the implementation of this alternative because it would "free up" resources currently spent by rural jurisdictions on measurement and shift them toward increased program development. Eventually, Board resources would also be freed to focus on larger waste streams with greater potential for significantly contributing to statewide achievement of 50 percent diversion. Savings would occur at the State and local level because this alternative means that rural jurisdictions could avoid the expense and time required to prepare new base levels, base-level corrections, or report-year disposal corrections. The Board and its staff would not have to review, revise, and approve these documents.

The working group envisioned this as a supplemental "measurement" system, not a replacement for the existing system. Large jurisdictions and other jurisdictions that successfully use the current system would continue to do so. The working group believes that existing provisions for "good faith" efforts and rural petitions for goal reduction set a precedent for this type of treatment, but the group would like to see the process formalized. This may require statutory or regulatory changes.

Make Specific Changes In How Some Materials And Processes Are Counted.

1. Remove uncertainties/inconsistencies with how some materials are counted for disposal at different facilities; for example, special waste.
"Solid waste" is specifically defined in PRC, section 40191(a) for the purposes of the IWMA; that is, for determining what is counted for disposal. Some special waste types are counted as disposal at some facilities and not counted at others, depending on regional water quality control board, air district, and local agency requirements as well as location and permit status of the disposal facility. This causes inequities among facilities and among jurisdictions using those facilities. These inequities may have unpredictable and adverse impacts on a jurisdiction's diversion rates. This solution could result in increasing accuracy and eliminating equity issues when similar materials are counted differently at different facilities, and reducing the unpredictability of planning for waste types whose disposal is extremely variable from year to year.

Addressing these inequities may mean changing how disposal is counted at facilities, which is likely to require changes to the current law defining solid waste. If waste types are not counted in the disposed waste stream, jurisdictions will not be able to count diversion of these materials. Many jurisdictions have spent resources developing, and rely on, programs for diversion of special waste. Adding more types of waste counted as disposal could require increased tracking of waste types or categories by landfill operators and jurisdictions. Finally, jurisdictions may have to do new base levels to account for the new types of wastes tracked in disposal.

2. Remove the existing ten percent diversion limit for non-burn transformation processes such as gasification, pyrolysis, etc.
The law defines transformation to include both burning (incineration) and non-burn processes such as pyrolysis, distillation, gasification, or biological conversion other than composting; transformation also does not include biomass conversion. Regulations limit the amount of transformation counted in the disposal reporting system to waste sent to the three Board-permitted transformation (waste-to-energy) facilities. These three facilities incinerate about 2.3 percent of the state's waste stream originating from about 155 jurisdictions. Before 2000, waste sent for transformation at the three permitted facilities counted as disposal; in 2000 and beyond, jurisdictions may claim up to ten percent of the 50 percent diversion requirement through transformation at these permitted facilities. This diversion claim is only valid if certain conditions are met. One of the conditions is that, prior to transformation, the facility use front-end methods or programs to remove all recyclable materials from the waste stream to the maximum extent feasible.

Currently there are no Board-permitted non-burn transformation facilities. Consequently, materials diverted from landfills through non-permitted facilities effectively count as diversion since they keep materials out of the measured disposal system. Measurement of non-burn transformation only becomes important for jurisdictions conducting new base-level studies, because they must quantify all diversion activities to get an accurate measurement of waste generation.

The alternatives group suggests that allowing jurisdictions to take full credit for diversion from newly-developed non-burn transformation facilities in new base-level studies would encourage development of innovative non-burn transformation technologies and encourages diversion and energy production through these technologies. This may indirectly assist in promoting alternatives that will ease the energy crisis. Since there is a requirement for front-end recycling, these non-burn transformation methods would deal with materials that are harder to divert and would not compete with markets for recyclables. For jurisdictions to receive diversion credit for materials sent to these facilities, the facilities may need to be tracked and regulated by the Board.

Consider Only Disposal Data In Assessing Goal Achievement.

1. Investigate use of disposal data (not generation) as an alternative way to demonstrate compliance.
Disposal data is the only piece of the waste stream that is actually measured in the current diversion rate measurement system. Some individual jurisdictions measure diversion as they establish new base levels or calculate their annual diversion rate. However, the vast majority of jurisdictions have not measured diversion since 1990; they estimate current generation data from the base-level generation, using the adjustment method. Therefore, disposal data is the most current and "firm" information we have on the waste stream. It is also the easiest part of the waste stream to measure. Disposal takes place at a limited number of sites, while diversion occurs in many forms in homes and businesses throughout California. Using disposal data alone could resolve measurement errors because it eliminates problems with old base-level data, the need for new base levels, and the need for projecting current generation using the adjustment method.

The Board's disposal reporting system (DRS) was initiated in 1995 to track all waste entering Board-permitted disposal facilities. The system works well for many jurisdictions but encounters difficulties in areas where many jurisdictions share the same disposal facilities or where jurisdictions are close together and have irregular borders. Any compliance system based solely upon disposal data is predicated upon making improvements in DRS.

Members of the working group were interested in whether disposal data alone could provide a reliable alternative to the current measurement system. The group considered the following options:

- Whether disposal should be calculated on a per-capita basis.
- Whether disposal trends should be measured over time.
- Whether this compliance system should be used only for those jurisdictions which have already achieved 50 percent diversion.
- How compliance might be measured using only disposal data when population growth and economic booms increase waste generation.

This approach simplifies the measurement system but emphasizes the need for accurate disposal data. Each of the several methods discussed for determining compliance using disposal data alone has advantages and drawbacks. Due to time constraints, the group could not determine which methods would be viable alternatives. However, the group recommended further research on these matters.

2. Combine disposal-based measurement with implementing a suite of diversion programs and show a reduction in disposal every year. Jurisdictions can petition for relief in showing yearly decrease in disposal amounts based on significant growth and proposed programs to address the growth.
This proposal is similar to the previous one, but it goes one step further. It would shift the measurement system to a disposal-based system combined with assessment of program implementation. Basing the measurement system on disposal and implementing programs could address inaccuracies of base levels and the adjustment method by only using disposal data (see discussion in preceding alternative). Under this measurement alternative, jurisdictions would meet IWMA compliance by showing a reduction in total disposal amount each year; that is, a trend of constantly decreasing disposal amounts. Program implementation would also be emphasized with requirements for jurisdictions to implement a suite of programs, as previously described for alternative number "1" in the proposed alternative solution entitled "Use program implementation and success to determine compliance."

Relying on the disposal reporting system (DRS) would make the accuracy of the DRS even more critical, as described above. Research would need to be done to determine how factors such as population, employment, and taxable sales relate to waste disposal rather than waste generation. Jurisdictions with inaccurate DRS data in which the errors cannot be corrected would have the burden of relying more on program implementation for compliance.

The working group proposed this solution because of the advantages of emphasizing disposal data and program implementation over the current measurement system. Relying solely on disposal data may simplify and increase accuracy of measurement by using only "real" measurements to assess IWMA compliance. The current field measurement system for DRS would not change, only how the data is used. By focusing on DRS data, there would be more incentive to fix errors in the system. An overall simpler system of measuring disposal and emphasizing program implementation would allow jurisdictions to shift resources to programs rather than correcting diversion rate and base-level inaccuracies.

Focus More On Developing Markets.

Focus on developing markets for recycled materials to "pull" materials out of the waste stream, rather than focusing on measuring waste.
Currently, the Board operates several market development programs, including Recycled Market Development Zone (RMDZ) loans. Other loans include those to encourage the development of products made from crumb rubber derived from old tires. The Board enforces minimum recycled content in several types of products, including newsprint and rigid plastic containers, and in addition, the Department of Conservation's Division of Recycling operates minimum content programs for fiberglass insulation and glass containers. The Board also purchases recycled products for its own operational needs and coordinates campaigns encouraging others in the public and private sectors to do the same.

Markets for recycled materials continue to be volatile, however, and low prices for certain materials undermine recycling efforts. Although many jurisdictions now separate plastic, metal, paper, and glass from the waste stream, the prices they receive for these materials often do not even cover the costs of collection. This is particularly true for rural areas far from commodity markets, where transportation costs cut deeply into returns.

Although this alternative does not address the measurement system directly, working group members feel that recycled material value is a critical component of diversion program success and proliferation. Wildly fluctuating but generally low material values have financially hurt jurisdictions and prevented diversion programs from being implemented. The Board, as an entity with statewide influence, ought to do more to develop stable markets for those materials being removed from the waste stream.

The group's recommendations include the following:

- Expand the list of materials for which minimum recycled content is required.
- Mandate the purchase of products made from recycled materials by government agencies.
- Leverage existing programs with funds from the federal government and private foundations, similar to the U.S. EPA's "Jobs Through Recycling" grants.
- Quantify the impacts of the Board's market development efforts (much the same way that jurisdictions must now quantify their waste diversion efforts).
- Expand and improve the RMDZ program as follows:
    - Expand RMDZ loan program eligibility to include sustainable business practices, including energy conservation, sustainable energy generation, and water conservation.
    - Provide RMDZ businesses with a State tax credit for the full value of the capital investment in sustainable recycling, energy conservation, sustainable energy generation or water conservation.
    - Create a secondary market for RMDZ loans by implementing the recommendations of the report "Creating a Secondary Market for Community and Economic Development Loans: a Feasibility Study" prepared for the California State Legislature pursuant to Chapter 923, Statutes of 1997 (AB 1219, Bustamante). Designate the Board as lead agency to implement the recommendations, with cooperation from the Trade and Commerce Agency and the State Treasurer's Office.
    - Clarify RMDZ revolving loan program, including:
        - Authorization to assist startup businesses through credit enhancements, including financial assurances and interest write-downs, and equity participation through the RMDZ revolving loan program.
        - Clear authority for Board loan sales, if needed.
        - Sunset extension, coterminous with zone re-designation and new zone designation.
    - The Board should prepare an updated market development plan, considering the expanded sustainable program eligibility and secondary market financing resources. The Board should include the California Association of Recycling Market Development Zones in all aspects of the market development plan update. The updated market development plan should include consideration of renewable and sustainable energy generation, as distinct from transformation.

The Board will co-sponsor a recycled products trade show in 2002 which will specifically target local government purchasers. Rather than minimum content programs, Board staff is focusing on development of specifications for recycled content for a list of products for environmentally preferable purchasing. Also, the Board and the Department of Conservation are currently engaged in the development of a Plastics White Paper to examine how the State programs can be most effective in addressing the plastics manufacturing and use to:1) conserve natural resources, 2) increase the plastics recycling, rate and 3) increase the use of postconsumer plastics. Stakeholder workshops will be held and the SB 2202 work group is encouraged to participate.

The Board recently revised the RMDZ loan eligibility criteria to include sustainable practices in the criteria. A tax credit program for RMDZ businesses could provide incentives to recycling businesses, but this would require a change in legislation. Given the current fiscal situation of the State's budget, passage of a tax credit program would be unlikely.

The Board is about to enter into a contract that will comprehensively look at all private, nonprofit, and public options for leveraging the limited RMDZ loan dollars. This study is expected to be complete in the

Spring of 2002. Staff recommends that this study be completed before deciding on the best program to leverage limited RMDZ dollars and novel approaches for startup businesses.

The RMDZ revolving loan program sunset is scheduled for July of 2006, while the first cycle of zone redesignations is to take place in 2003. Guidance to zone administrators for the re-designation process will begin in 2002, much before the loan program sunset date. It would make better sense to request an elimination of the sunset date closer to actual expiration date, beginning that process in 2004. However, to the extent that the two processes can be coordinated, it will be done.

The Board will shortly adopt its strategic plan that includes strong recommendations relating to sustainability and increased markets for recyclables.

Expand Responsibility For Diverting Materials.

1. Adopt new laws to require schools to work with local government recycling coordinators to divert waste.

Current responsibility for meeting waste reduction goals falls on local governments only, but they do not have control over all waste generated within their borders. The working group proposed this solution because of the benefits of shifting responsibility to "upstream" generators. Widening the circle of responsibility for meeting the intent of the IWMA would help jurisdictions meet the diversion goals, because they would have more influence over schools as "upstream" generators. Waste generators may comply with local recycling programs but aren't individually responsible for meeting waste reduction goals. In many cities and counties, schools are significant generators. Statewide, all education services (including colleges and universities) contribute about four percent to the disposed waste stream. Schools are exempt from using franchised waste haulers that often provide recycling services to a community. They are free to contract with any waste hauler or recycling service provider and may choose not to recycle because of added costs. Requiring schools to run their own diversion programs could increase opportunities for solid waste and environmental education.

More diversion could be achieved by moving responsibility for reducing waste "upstream" on those that may have more control or impact on waste generation. This alternative calls for schools to more actively share responsibility with local governments for meeting diversion goals. Impacts to schools include the costs and resources to implement waste diversion programs; Board resources would also be needed to monitor schools compliance. Finally, statutory change would be required to implement this proposal, because current law encourages cooperation.

2. Put more responsibility on generators of difficult-to-handle waste.

This alternative emphasizes a shared responsibility on the part of all those involved in the generation of waste. Many jurisdictions that have met and exceeded the goals of the IWMA could not have done so without the cooperation of local businesses and manufacturers; however, members of the working group believe more effort is needed on the part of businesses and manufacturers to carry their share of the solid waste burden, especially for wastes that are difficult to handle. Chapter 764, Statutes of 1999 (AB 75, Strom-Martin), which expanded the circle to include state agencies as responsible parties in meeting the goals and spirit of the IWMA, is a step in the right direction.

"Take Back" laws and financial incentives for containers, tires, auto batteries, and motor oil already exist in California. Existing regulation of disposal of cathode ray tubes (CRTs) in computers and televisions emphasizes the need to expand this program in order to prevent an undue burden on local governments. Additionally, a number of producer-responsibility laws passed by the European Commission serve as examples to form the basis of pursuing this alternative.

The working group would like the Board to further investigate and support programs such as advance disposal fees for other "difficult to dispose" products, including paint, pesticides, mattresses, furniture, and large appliances. The Board's new strategic plan addresses this in goal #1 which promotes "product stewardship and manufacturer responsibility to reduce waste and create a sustainable infrastructure." The Board has already given specific direction for product stewardship policies for paint as well as other products. In addition, the Board is participating in the National Electronic Product Stewardship Initiative (NEPSI).

Although this measure does not address the measurement system directly, the working group members assert that local governments currently bear a disproportionate share of the waste diversion burden. When a larger group shares the responsibility for solid waste, the resource requirements for all parties involved is more equitable.

3. Adopt new laws to require disposal facilities to divert waste from self-haulers.
Self-haul waste is disposed by those whose primary business is not waste hauling, such as homeowners, roofers, landscapers, construction companies, and many other types of generators. Self-haul can make up a significant portion of a jurisdiction's waste. The Board's 1999 statewide waste characterization study found self-haul to make up about 13 percent of the state's overall waste stream. The study showed self-haul waste contains a large proportion of construction and demolition waste (such as lumber, ferrous metal, and concrete) which potentially could be recycled.

Although jurisdictions carry the responsibility for meeting diversion goals, they typically do not have control over all the waste generated within their borders. Since self-haul waste is taken by the waste generator directly to disposal sites, it may not be easily captured or addressed by local diversion programs. Disposal facilities themselves may be in the best position to divert materials from this waste stream and should be required to divert 50 percent of self-haul waste that enters the facility.

Further Support Jurisdictions In Their Local Diversion Efforts.

1. Further promote the focus on largest individual generators, largest sectors, and most common materials to reduce waste and recycle. Include this approach in the menu of programs to be developed (as discussed under the heading "Use program implementation and success to determine compliance" above).
This solution is similar to the "gross polluter" approach taken in other environmental areas, in that it focuses on the individual waste generators and sectors that produce the largest amounts of waste. A jurisdiction could focus on the largest tonnages of waste from generators, usually businesses, and identify waste prevention practices to reduce or eliminate the tonnage going to the landfill.

Although jurisdictions have sole responsibility for IWMA compliance, they typically don't have control over all the waste generated within their borders. Focusing on large generators gives jurisdictions greater influence over a waste stream they normally don't control. The responsibility for reducing waste is shifted "upstream" to those that may have more control or impact on waste generation.

Several questions exist concerning this proposal. The proposal would require significant resources and commitment from the Board, jurisdictions, and individual generators. Local governments and the Board would have to identify generator's waste streams and develop programs for reducing their waste streams. Individual generators would have to be committed to reducing their waste streams and spending the money to do so. Focusing on generators does not address current measurement system problems. Finally, this proposal could require statutory changes if new requirements are put on businesses.

This solution provides many advantages for helping jurisdictions reach IWMA compliance. Focusing on waste generators could help jurisdictions improve diversion by identifying areas with less existing diversion and the most potential for increased diversion. This approach has been used by several jurisdictions and has been successful in increasing diversion rates. By including this approach as part of a menu of programs, jurisdictions will have an additional solution for reaching IWMA compliance.

2. The Board should provide standard curriculum or training for local government staff (especially new recycling coordinators) responsible for program implementation and other IWMA and waste management duties.

There are few opportunities for college-level training in waste management. Both State and local government staff assigned to waste management programs and code enforcement need information, libraries, and training in the field of waste management. New local government staff with limited experience would benefit from the opportunity to receive a minimum level of training for IWMA compliance. In the past, several colleges and universities had certificate programs in waste management issues, but few are available currently. The only state-originated program related to waste management is the Registered Environmental Assessor.

IWMA compliance by jurisdictions can be hindered by a lack of formal training and education opportunities for local program coordinators, and by lack of professional requirements in resource management issues and strategies. Without a consistent training program, waste managers at many levels are left to develop their own expertise which could be inconsistent and uneven. The proposal would shift the responsibility of training related to IWMA compliance to the state. The State of California and CIWMB could provide the funding and programs for standard curriculum and training and various levels of certification for waste managers at all levels, and private businesses (that is, large corporations) as well as state and local government staff. The training process could include a CIWMB certification program that would cover minimum standards, program implementation, and other waste management duties. Programs used by the Board and other state and local agencies could be used as training models, such as the Board's LEA certification program.

A moderate level of Board resources could be needed to set up a training program. This could include adding new staff or reassigning staff to develop and provide the training as well as money for curriculum materials. Shifting the responsibility of training to the state may require changes in statute and regulation. Providing training to local government staff does not directly address disposal and measurement issues, but it enhances jurisdictions' ability to meet diversion goals.

3. Remove institutional barriers to diversion.

Jurisdictions, facilities, and entrepreneurs have encountered barriers to establishing new diversion opportunities due to State policies or institutional requirements. One scenario is: under pressure to meet the 50 percent waste diversion requirement, a jurisdiction performs a waste characterization study that determines that construction and demolition (C&D) waste makes up a significant percentage of its disposed waste stream. As a result, the jurisdiction proposes to establish a mixed C&D processor or gypsum reprocessing facility. Then, the jurisdiction or facility operator has difficulties and delays in determining what local and state permits may or may not be necessary to open the facility and/or in obtaining those permits.

This type of situation causes some stakeholders to view the Board as inconsistent. The working group recommends the Board review its internal policies, particularly those involved with the permitting of new diversion facilities, to ensure they are consistent with the goals and mission of the Board and the messages the Board is sending to local government. The Board should also investigate other institutional barriers, especially those at the state level, that inadvertently hinder the development of diversion opportunities. Regulations pertaining to the transfer and processing of construction, demolition, and inert debris are in currently in process and will be released for public comment in the next few months. Therefore, the Board has an immediate opportunity to modify regulations as needed to address this alternative. The Board must carefully consider specific types of facilities as new regulations and policies are developed in order to balance the advantages of streamlining with protecting the health and safety of Californians and the environment.

Summary

The solutions recommended reflect several broad themes that echoed throughout the discussions of all of the working groups. Many members of each of the working groups expressed concern over the danger of judging compliance with the IWMA based solely on a calculated diversion rate, especially when that rate is derived from a measurement system with recognized potential errors. The working group members emphasized over and over the importance of considering information on diversion program implementation, especially if calculated diversion rates may not reflect program efforts and successes. Since small and/or rural jurisdictions are prone to more measurement problems, this consideration is especially important for them.

All of the groups recognized the benefits of measuring at a higher level than the individual jurisdiction, and data developed for the DRS group and the adjustment method group support this finding. Therefore any efforts that can be taken to promote countywide and/or other types of regional measurements should be undertaken.

The alternatives working group included recommendations to address specific problems with measuring disposal (special waste), as did the DRS group. The alternatives group further recommended investigating new ways to use disposal data and measurement systems based on disposal data alone. These ideas can perhaps yield better information on disposal reduction as well as program effectiveness, and they are worth further research.

Finally, the alternatives group recommends that specific actions be taken to aid and enhance local government efforts to achieve the diversion goals. These include continuing to increase market development efforts, including more parties in the responsibility for waste diversion and resource conservation, removing inadvertent barriers to diversion, and improving training and education for those on the front lines of waste diversion efforts.

Appendix A

GENERAL INFORMATION

A Comprehensive Analysis of the Integrated Waste Management Act Diversion Rate Measurement System

November 13, 2001

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
INTEGRATED WASTE MANAGEMENT BOARD

Appendix A
Table of Contents

Key Provisions of the Act and Subsequent Legislation

California Integrated Waste Management Legislation 1989–2000

The following is a chronology of State legislative bills, beginning with the creation of the California Integrated Waste Management Board (CIWMB) and its programs, and progressing through 10 years of additions, repeals, and amendments. This chronology begins with the Integrated Waste Management Act and SB 1332, the groundbreaking pieces of legislation that were largely responsible for the revolution in California's waste management practices. Subsequent bills are listed in alphanumeric order by year.

Year: 1989
Bill: AB 939
Author: Sher
Citation as Law: Chapter 1095, Statutes of 1989
Subject: The California Integrated Waste Management Act of 1989 (IWMA)
Description: AB 939 set out to shift solid waste disposal from reliance on landfills to a new solid waste hierarchy: source reduction, recycling and composting, and environmentally safe landfilling and transformation. The Act required cities and counties to divert 25 percent of all solid waste from landfills and transformation facilities by 1995, and 50 percent by the year 2000.

Year: 1989
Bill: SB 1322
Author: Bergeson
Citation as Law: Chapter 1096, Statutes of 1989
Subject: The California Integrated Waste Management Act of 1989
Description: SB 1322 created a myriad of programs to be administered by the CIWMB, including programs for market development zones, recycled-content paper, compost markets, plastic recycling, retreaded tires, recycled lead-acid batteries, technical assistance, office paper recovery, a Los Angeles County litter pilot project, public information and education, and research and development.

Year: 1990
Bill: AB 1820
Author: Sher
Citation as Law: Chapter 145, Statutes of 1990
Subject: Integrated Waste Management
Description: AB 1820 made a number of technical and substantive changes to the IWMA, which included requiring the CIWMB in cooperation with the Department of Health Services (DHS) and the State Water Resources Control Board (SWRCB), to determine disposal options for sewage sludge. The bill reduced the 25 and 50 percent diversion rates for grandfathered transformation facilities if meeting those diversion rates interfered with refinancing of those facilities.

Year: 1992
Bill: AB 260
Author: Epple
Citation as Law: Chapter 736, Statutes of 1992
Subject: Transformation: Diversion Requirements
Description: AB 260 revised the conditions which local governments must meet in order to be eligible to petition the CIWMB for a reduction in the AB 939 waste diversion requirements due to disposal of 75 percent or more of their solid waste by transformation as of January 1, 1990.

Year: 1992
Bill: AB 2092
Author: Sher
Citation as Law: Chapter 105, Statutes of 1992
Subject: Solid Waste Plans and Fees
Description: AB 2092 extended the deadline for cities and counties to submit integrated waste management plans (IWMP) to the CIWMB based upon years of landfill capacity remaining, and extended the date by which cities and counties must adopt their source reduction and recycling element (SRRE) and their household hazardous waste element (HHWE) from January 1, 1991, to January 1, 1992.

Year: 1992
Bill: AB 2211
Author: Sher
Citation as Law: Chapter 280, Statutes of 1992
Subject: Technical Changes/Wood Waste
Description: AB 2211 repealed the requirements regarding testing and evaluation of co-compost products and clarified diversion credit for nonyard wood wastes. It also clarified that the CIWMB may impose penalties for failure to submit adequate countywide integrated waste management plans. Further, it made technical changes to provisions under which the CIWMB imposes civil penalties and denies, suspends, or revokes solid waste facility permits.

Year: 1992
Bill: AB 2494
Author: Sher
Bill: Chapter 1292, Statutes of 1992
Subject: Waste Diversion: Planning: Regionalization
Description: AB 2494 authorized achievement of the waste diversion goals on a regional basis (for jurisdictions of up to 250,000 people), enacted a disposal-based method of measuring compliance with the waste diversion goals, and provided for increased assistance to local governments in preparing their IWMPs and in the development of model programs for market development, source reduction, and public education and information.

Year: 1993
Bill: AB 54
Author: Sher
Citation as Law: Chapter 663, Statutes of 1993
Subject: California Integrated Waste Management Plans Cleanup Provisions
Description: AB 54 required information on the development of technical assistance and market development programs for rural cities and counties to be included in the CIWMB's annual report. The bill also contained language to integrate provisions of AB 2494 and AB 3001, which were signed into law in 1992.

Year: 1993
Bill: AB 440
Author: Sher
Citation as Law: Chapter 1169, Statutes of 1993
Subject: Solid Waste Planning: Emergency Regulations
Description: AB 440 removed the 250,000 population cap on regional waste management planning, altered the date for submittal of source reduction and recycling elements (SRRE) and nondisposal facility elements (NDFE), and authorized emergency regulations for the preparation and submittal of the planning elements.

Year: 1993
Bill: AB 1405
Author: Morrow
Citation as Law: Chapter 183, Statutes of 1993
Subject: Diversion Requirements: Newly-Incorporated Cities
Description: AB 1405 authorized the CIWMB to grant an extension from the diversion requirements for any newly incorporated city or county if specified conditions are met.

Year: 1994
Bill: AB 688
Author: Sher
Bill: Chapter 1227, Statutes of 1994
Subject: Integrated Waste Management Planning
Description: AB 688 authorized the CIWMB to conditionally approve integrated waste management plans and their elements and clarified circumstances under which the CIWMB was, or was not, to impose penalties for failure to comply with planning and diversion mandates. The legislation included various provisions to assist rural jurisdictions in meeting the planning and diversion mandates of the IWMA. Additionally, the bill authorized the CIWMB to reduce the diversion requirements of a jurisdiction which hosted a regional medical waste treatment facility, if certain conditions were met.

Year: 1994
Bill: AB 2938
Author: Aguiar
Citation as Law: Chapter 1150, Statutes of 1994
Subject: Diversion Requirements: Newly Incorporated Cities
Description: AB 2938 reduced the conditions to be met before the CIWMB could grant a time extension from the diversion requirements for newly-incorporated cities and allowed the CIWMB to authorize a time extension to a newly-incorporated city to submit an SRRE that included a specified implementation schedule for the initial element and the first revision.

Year: 1995
Bill: AB 381
Author: Baca
Citation as Law: Chapter 219, Statutes of 1995
Subject: Diversion Requirements: Good Faith Efforts
Description: AB 381 revised the definition of "good faith efforts," part of the criteria used by the CIWMB in determining whether to impose civil penalties on a local jurisdiction for failure to implement certain planning elements.

Year: 1995
Bill: AB 1932
Author: Sweeney
Citation as Law: Chapter 665, Statutes of 1995
Subject: Diversion Requirements: Regional Diversion Facilities: Reporting
Description: AB 1932 allowed a jurisdiction to come before the CIWMB and petition the Board for a modification to its reported disposal amounts based on information regarding increased disposal amounts from, and a lack of feasible diversion alternatives for, residual waste from regional diversion facilities.

Year: 1996
Bill: AB 1647
Author: Bustamante
Citation as Law: Chapter 978, Statutes of 1996
Subject: Solid Waste Landfills: Alternative Daily Cover: Diversion
Description: AB 1647 specified that beneficial reuse in the construction and operation of a solid waste landfill, including use of alternative daily cover, constitutes diversion through recycling.

Year: 1996
Bill: AB 3358
Author: Ackerman
Citation as Law: Chapter 1041, Statutes of 1996
Subject: Solid Waste Management
Description: AB 3358 made a number of technical, definition or code cleanup clarifications within the public resources, financial, government and public contract codes in areas related to solid waste management or programs administered by the CIWMB. Changes included exempting the CIWMB from the California Finance Lenders Law and limiting the definitions of "solid waste disposal" or "disposal" for specified purposes of the IWMA.

Year: 1997
Bill: SB 1066
Author: Sher
Citation as Law: Chapter 672, Statutes of 1997
Subject: Solid Waste: Market Development
Description: SB 1066 authorized the CIWMB to grant single or multi-year extensions to achieve the goals of the IWMA. The bill required the CIWMB to consider specified circumstances in deciding whether to approve an alternative source reduction, recycling, and composting requirement. In addition, the bill required the market development plan developed by the CIWMB to include
(1) efforts to encourage and promote cooperative regional programs to expand markets for recycled materials and (2) activities to address problems and opportunities that are unique to rural, urban, and suburban areas of the State.

Year: 1999
Bill: AB 75
Author: Strom-Martin
Citation as Law: Chapter 764, Statutes of 1999
Subject: State Agency Recycling: Waste Diversion: Community Service Districts
Description: Requires each State agency or large State facility to develop an integrated waste management plan (IWMP) by July 1, 2000, in consultation with the CIWMB, and divert at least 25 percent of its solid waste from landfills by January 1, 2002, and 50 percent by January 1, 2004. Additionally, the measure requires each community service district that provides solid waste services to report disposal and diversion information to the city, county, or regional agency where the district operates.

Year: 1999
Bill: AB 514
Author: Thomson
Citation as Law: Chapter 439, Statutes of 1999
Subject: Solid Waste: Biomass Conversion
Description: AB 514 revises the definition of biomass conversion to include the controlled combustion of nonrecyclable pulp or nonrecyclable paper materials and exclude the controlled combustion of recyclable pulp or recyclable paper materials. The definition of biomass conversion is used to determine whether a local jurisdiction can claim up to 10 percent of the 50 percent-by-the-year 2000 diversion mandate from biomass conversion.

Year: 1999
Bill: SB 515
Author: Chesbro
Citation as Law: Chapter 600, Statutes of 1999
Subject: Waste Management: Inert Waste: Rural Jurisdictions
Description: SB 515 exempts use, disposal, or placement of inert waste at surface mine reclamation sites from the current integrated waste management fee ($1.34 per ton). The bill also revises current law with regard to the definition of "rural area" and "rural city."

Year: 2000
Bill: SB 2202
Author: Sher (Senate Environmental Quality Committee)
Citation as Law: Chapter 740, Statutes of 2000
Subject: Waste Management: Diversion Reports
Description: SB 2202 made a number of changes to the municipal solid waste diversion requirements under the IWMA. These changes included revision of the statutory requirement for 50 percent diversion to state that local governments shall divert 50 percent of all solid waste on and after January 1, 2000. It also allowed a local government to include in its annual report to the CIWMB factors that affect accuracy of the waste disposal calculation. The measure also required that the CIWMB submit a report to the Legislature by January 1, 2002, evaluating the existing disposal reporting system.

Local Assistance Tools

The following are specific assistance tools and resources that have been developed to promote cost savings for local government and ensure compliance with requirements.

Publications

How to Prepare a Nondisposal Facility Element. A model planning document that provides an example of the format and content for describing the nondisposal facilities a jurisdiction uses for managing its wastes.
How to Prepare a Countywide or Regional Siting Element. A model planning document that contains guidance on meeting the planning requirements for providing for 15 years of countywide disposal capacity; including the requirements for siting new disposal facilities. Pub. #300-94-003.
How to Prepare a Countywide or Regional Agency Integrated Waste Management Summary Plan. A model planning document that guides jurisdictions in the summation of countywide or regionwide diversion programs and the waste management practices and issues within the county or region. Pub. #300-94-004.
The California Cookbook. A catalog of waste prevention and diversion programs successfully implemented in rural communities throughout California and the United States. Pub. #300-94-002.
Statewide Waste Characterization Study*: Results and Final Report*. Study to collect data on quantity and composition of statewide disposed waste stream for residential, commercial, and self-haul. Pub. #340-00-009.
Facility and Collection Cost Models. Computer tools to assist jurisdictions in estimating disposal and diversion facility costs and collection costs based on user inputs.
Facility Cost Model, Version 3, Pub. #520-96-009.
Curbside Collection Cost Model, Version 2, Pub. #520-96-002.

Web-Based Tools

Adjustment Method. Method to account for effects of changes in population and economics on waste generated in jurisdictions. www.ciwmb.ca.gov/LGCentral/DivMeasure/AdjMethd.htm.
Conducting a Diversion Study—A Guide for Local Jurisdictions. A tool for jurisdictions on how to perform a diversion study to establish a new base year. Pub. #311-99-006. www.ciwmb.ca.gov/LGLibrary/DSG/.
Countywide, Regionwide and Statewide Jurisdiction Diversion Progress Report. This report provides both summary and detailed information on biennial review status, diversion rates, and waste diversion program implementation for all California jurisdictions. Users can group jurisdictions by county, by specific geographic regions, or by the entire state.
Default Adjustment Factors. The default adjustment numbers are displayed for each jurisdiction. The calculator automatically computes the diversion rate for any jurisdiction selected by the user. If more accurate information is available, you may change a jurisdiction's default numbers. www.ciwmb.ca.gov/LGTools/DivMeasure/JuAdjFac.asp
Disposal Reporting System. A disposal reporting tool for jurisdictions to use in calculating diversion goal achievement. www.ciwmb.ca.gov/LGCentral/DRS/.
Diversion Rate Calculator. The online diversion rate measurement calculator helps jurisdictions calculate their diversion rates using the Board-approved adjustment method to remove the effects of changes in population and economic change on the jurisdiction's rate. www.ciwmb.ca.gov/LGTools/MARS/DRMCMain.asp.

Diversion Study Guide. The diversion study guide provides guidance to the jurisdictions, businesses, and local government officials to perform the research necessary to establish new baseline figures for diversion measurement. www.ciwmb.ca.gov/LGLibrary/DSG/.
infoCycling. An information newsletter for local governments. Publication number varies by issue. www.ciwmb.ca.gov/LGLibrary/infoCycling/.
Integrated Waste Management Disaster Plan. Model for local governments to plan how to reuse and recycle materials when disaster occurs. Pub. #310-97-006. www.ciwmb.ca.gov/Disaster/DisasterPlan/.
Local Government Central. This is your gateway to assistance with all aspects of integrated waste management. The site will provide information about the IWMA and provide assistance with analyzing your waste stream and planning your approach to implementing the programs that will help you reach the goal, it will also assist you in tracking and reporting your disposal and diversion rates. www.ciwmb.ca.gov/LGCentral/.
Model Annual Report. Provides guidance to jurisdictions in complying with requirement to annually report progress in implementing diversion programs and progress towards achieving the 25 percent and 50 percent diversion goals. www.ciwmb.ca.gov/LGCentral/AnnualReport/ModelAR/.
Methods to Measure Solid Waste Disposal/Diversion. Tools for jurisdictions to use in determining amount of waste disposal and diversion from all sources in each jurisdiction. www.ciwmb.ca.gov/LGcentral/WasteStream/.
Local Government Assistance Library. Online resources that make available successful local government-developed materials, including, but not limited to, contracts, requests for proposals, waste management and diversion program information, and public education materials. www.ciwmb.ca.gov/LGLibrary/.
Planning Annual Report Information System (PARIS). Database for reporting local government program implementation. www.ciwmb.ca.gov/LGCentral/Reporting/.
Profiles. These profiles provide summarized solid waste management information by pulling together information from numerous information sources. The profiles present information about local jurisdictions and waste tires in California, which can be accessed through the categories of jurisdictions, facilities and materials. It also provides helpful maps and charts. www.ciwmb.ca.gov/Profiles/.
State Labor Force vs. Industry Employment. Employment Development Department Web page, *Employment by Industry Data Compared to Employment Data in Labor Force Statistic* found at www.calmis.cahwnet.gov/file/resource/indlfcomp.htm.
Uniform Waste Characterization Method. Method for collecting data on the amounts and types of material in the waste stream to assist jurisdictions in targeting materials for diversion. www.ciwmb.ca.gov/wastechar/yourdata.htm.
Waste Characterization Database. Database of materials disposed for the business waste stream that can be targeted for recycling. www.ciwmb.ca.gov/WasteChar/dbmain.htm.
WasteLine. An online information and data request system for both internal and external customers. www.ciwmb.ca.gov/LGCentral/WasteLine/.

Glossary of Terms

AB 75 (Chapter 764, Statutes of 1999): This 1999 State legislation requires each California State agency, on or before July 1, 2000, to develop and adopt, in consultation with the Board, an integrated waste management plan. **The bill** also requires each State agency and each large State facility, as defined, to divert at least 25 percent of its solid waste by January 1, 2002, and at least 50 percent by January 1, 2004.

Adjustment method: A standard formula used in diversion rate measurement to offset changes in a jurisdiction's population and economic conditions between the base year and the measurement year. Without the adjustment method, population growth and economic booms would result in lower diversion rates. **Public Resources Code section 41780.1** requires use of this adjustment method. There are **four factors** in the adjustment method: population, employment, taxable sales, and inflation.

Advanced disposal fee: Consumer payment made by the consumer at the time of product purchase to cover all future costs—including environmental costs—for recycling or disposal of that product.

Alternative daily cover: Board-approved materials other than soil used as a temporary overlay on an exposed landfill face. Generally, these materials must be processed so that they do not allow gaps in the face surface, which would provide breeding grounds for insects and vermin. **Public Resources Code section 41781.3** stipulates this practice is recycling, not disposal, and authorizes the Board to adopt regulations, such as **Title 27 California Code of Regulations, section 20690**. Approved materials processed green waste, wood, sludge, ash and kiln residue, compost, construction and demolition debris, and special foams and fabrics. Also see **Local Enforcement Agency (LEA) Advisory #48.** **CIMWB Publication Number:** 232-97-023.

Annual report: State law (**Public Resources Code section 41821** et seq.) requires each **jurisdiction** to annually submit a report to the Board that discusses that year's progress toward implementing waste diversion programs and/or facilities described in a jurisdiction's waste management **planning documents**. This report also includes the jurisdiction's calculated annual **diversion rate**. Annual reports are due to the Board August 1 each year for the prior calendar year. The Board developed a **model annual report** to help jurisdictions more easily meet this requirement.

Base-level year: The initial or subsequent Board-approved jurisdiction reference year waste generation (disposal + diversion) tonnage, separated by source into residential and non-residential amounts (14 CCR 18797.3)

Base-year generation tonnage: The Board-approved initial waste generation amount (disposal + diversion) for any **jurisdiction**. Diversion rates for all subsequent years are calculated using the **base-year generation** amount as modified by the board-approved adjustment method. If the base year tonnage is inaccurate, or if there are major changes in the nature of a jurisdiction's solid waste production, subsequent diversion rate calculations will be inaccurate. Jurisdictions with base-year-related diversion rate calculation problems often choose to establish a new base year by conducting a new **diversion study** or **generation study**.

Biennial review: The Board's evaluation of a jurisdiction's waste diversion program implementation and diversion rate performance. The evaluation, and subsequent public hearing, may occur more frequently than biennially (once every two years), at the discretion of the Board. Please see **Public Resources Code section 41825**.

Biomass: Controlled burning of specified organic materials, such as wood waste, agricultural crop residues, leaves, grass clippings, and pruning to produce electricity or heat. **Public Resources Code section 40106** defines biomass conversion. **Public Resources Code section 41783.1** describes how it may be used to increase diversion.

Board. California Integrated Waste Management Board (PRC section 40106(a)(b).

Board-permitted landfill: A facility located within California that is permitted by the Board to accept and bury solid waste from jurisdictions within and outside of California.

Brown goods: Computers, televisions, radios and other home electronics. Named during the days when many televisions and radios had wood or fake wood cabinets.

Commercial sector: Commercial sector waste comes from all businesses, small and large, including wholesale and retail sales, restaurants, manufacturing, and transport. The commercial sector also includes government, schools, institutions, fairs and expositions, and other special events. It may also include the subdivision of commercial self-haul, which would include any waste generated by a business and hauled by that business to a **Board-permitted landfill** or **transformation facility**; for example, a roofing company that routinely hauls to the landfill old roofing materials removed from job sites. Commercial self-haul would also include small businesses that haul odd loads for a living. The commercial, **residential**, and **self-haul** sectors make up the complete waste stream.

Compliance order: A formal Board order finding that a **jurisdiction** has failed to implement its **source reduction and recycling element** (SRRE) or its **household hazardous waste element** (HHWE), and comply with the **IWMA**. The compliance order contains a specific schedule for achieving compliance as well as specific conditions that the Board deems necessary for the jurisdiction to complete in order to implement its SRRE or HHWE or reach its required diversion rate. Please see **Public Resources Code section 41825**.

Component: Each jurisdiction's **source reduction and recycling element** (SRRE) must contain nine components, each of which specifies objectives for a major type of diversion program. These nine required SRRE components are source reduction, recycling, composting, special waste, education and public information, solid waste facility capacity, funding, waste characterization, and integration. Please see **Title 14, California Code of Regulations, sections 18733 et seq.**

Composting: The process of collecting, grinding, mixing, piling, and supplying sufficient moisture and air to **organic materials** to speed natural decay. The finished product of a composting operations is compost, a soil amendment suitable for incorporating into topsoil and for growing plants. Compost is different than mulch, which is a shredded or chipped organic product placed on top of soil as a protective layer. Please see **Public Resources Code section 40116** or the Board's **organics Web pages**.

Construction and demolition (C&D) debris: Building materials and solid waste from construction, deconstruction, remodeling, repair, cleanup, or demolition operations that are not "hazardous" (as defined in **Public Resources Code section 40141**). This term includes, but is not limited to: asphalt, concrete, Portland cement, brick, lumber, wallboard, roofing material, ceramic tile, plastic pipe, and associated packaging. See also the Board's **C&D Web site** and the waste characterization **materials page**.

Consumer price index (CPI): A measure of inflation, or the decrease in the purchasing power of a dollar, based on the change over time of the average prices paid by urban consumers for a "market basket" of goods and services—such as food, clothing, shelter and fuel—used for day-to-day living. In the **board-approved adjustment method**, CPI deflates report-year taxable sales into inflation-free dollars.

Three California metropolitan-area CPI rates are computed by the U.S. Department of Labor, **Bureau of Labor Statistics**. Statewide average CPI is computed by the State's **Department of Industrial Relations**.

Countywide integrated waste management plan: The complete package of planning documents required by **Public Resources Code section 41750**, prepared by a county or a regional agency in conjunction with all cities within its boundaries. Each city must prepare a **source reduction and recycling element** (SRRE), a **household hazardous waste element** (HHWE) and a **nondisposal facility element** (NDFE). Each county must prepare all of those documents for unincorporated areas within their boundaries, plus a **countywide siting element** (CSE) and a **summary plan** (SP). A **regional agency** may use existing plans for each member agency or prepare a single SRRE, HHWE, NDFE, CSE and SP for all regional agency members.

Countywide siting element: Part of a county's or a **regional agency's** integrated waste management plan, the siting element demonstrates ability to provide 15 years of permitted disposal capacity for all jurisdictions within the county or regional agency. If the county or regional agency cannot show 15 years of disposal capacity, it must show a plan to obtain that capacity, or otherwise to transform, or to divert its waste. **Title 14, California Code of Regulations, section 18755-18756.7** et seq. covers siting elements.

Deconstruction: The process of taking apart a structure with the primary goal of preserving the value of all useful building materials, so that they may be reused or recycled.

Default. Standard. What is used in the absence of something else.

Demographic Change Ratio. The average of base-level year to measurement year population and economic change ratios (14 CCR 18797.3(d).

Disposal: For diversion purposes, disposal is all waste created by all businesses and residents that is disposed at **Board-permitted landfills**, at **transformation facilities**, or is exported from the State. The Board tracks tons of waste disposed by each jurisdiction using its **disposal reporting system**. Also, please see **Public Resources Code section 40192**. The management of solid waste through landfill disposal or transformation at a permitted solid waste facility (PRC section 40192[b]).

Disposal reporting system: The Board's system to track how much waste is disposed by each city, county and regional agency in California. Tracking originates with each county or regional agency, which submits quarterly disposal reports to the Board. Waste facility operators conduct quarterly "jurisdiction of waste origin surveys," to estimate the amount of waste disposed at that facility by each jurisdiction. Please see **Title 14, California Code of Regulations, section 18800.**

Diversion. Activities that reduce or eliminate the amount of solid waste from solid waste disposal (PRC section 40124). For waste measurement purposes, diversion is any combination of waste prevention (source reduction), recycling, reuse and composting activities that reduces waste disposed at **Board-permitted landfills** and **transformation facilities**. Diversion is achieved through the implementation of diversion programs. Please see **Public Resources Code section 41780.**

Diversion program: Any activity implemented by a **jurisdiction** to divert solid waste from disposal, including **source reduction** (waste prevention), **reuse**, recycling, and composting. Diversion activities must be in accordance with all applicable federal, State, and local requirements.

Diversion rate: The percentage of its total waste that a **jurisdiction** diverted from disposal at **Board-permitted landfills** and **transformation facilities** through reduction, reuse, recycling programs, and composting programs. Jurisdictions are required by law to achieve 50 percent diversion for the year 2000. The Board developed the **diversion rate calculator** to assist jurisdictions with the diversion rate equation.

Diversion study: A Board-approved methodology used to quantify a jurisdiction's existing diversion tonnages. A jurisdiction may use the results of a **properly conducted diversion study** in support of a request to the Board for a new **base-year generation tonnage**.

Economic Change Ratio: The average of base-level year to measurement year employment and inflation-adjusted taxable sales ratios (14 CCR 18797.3[d]).

Employment: Estimated number of employed workers—including self-employed individuals, unpaid family workers, household domestic workers, and workers on strike—that reside within a jurisdiction. One of the four factors used in the **board-approved adjustment method.** The federal **Bureau of Labor Statistics** tracks how many people living in a particular county are working at least one hour a week. Employment-by-industry data, such as that contained in the Board's **waste characterization database**, counts the number of workers by where they are employed. Other sources of labor market data include the State of California's **Employment Development Department** and private firms such as **Dun & Bradstreet**.

Franchise hauler: Any waste hauler that has a contract granted by a county board of supervisors, after a competitive bidding process, for the collection, disposal or destruction, or any combination thereof, of garbage, waste, offal or debris. The terms and conditions of the "franchise" are set forth in a written agreement, which may not last longer than 25 years. (**Public Resources Code section 49201 [a]**) Cities may adopt similar contracts by resolution or ordinance. (**PRC section 49300**).

Generation: The total amount of waste produced by a jurisdiction. The basic formula is **disposal** plus **diversion** equals generation.

Generation study: Quantification of a jurisdiction's waste production and disposal characteristics. All California jurisdictions were required to perform a generation study as part of their original compliance with the **Integrated Waste Management Act**. Typically, jurisdictions wishing to establish a new **base year** complete a **diversion study** and retrieve their disposal data from the Board's **disposal reporting system** (DRS). However, the Board may accept well-documented disposal data from sources other than the DRS.

Good faith effort: Per **Public Resources Code section 41850 (c)(1)(B)(i),** good faith efforts means all reasonable and feasible efforts by a city, county, or regional agency to implement those programs or activities identified in its source reduction and recycling element or household hazardous waste element, or alternative programs or activities that achieve the same or similar results. Please see the code for more detailed definitions. The Board has adopted **detailed enforcement guidelines** for evaluating agencies that fail to implement their plans or fail to achieve required diversion rates.

Household hazardous waste: Hazardous waste materials discarded, typically in small quantities, by households (as opposed to large quantities disposed by businesses). Typical household hazardous wastes include used motor oil and oil filters, antifreeze and other vehicle fluids, paints and varnishes, pesticides, and cleaning supplies. See **Health and Safety Code section 25216.**
Also, please see the Board's **HHW Web site** and the Waste Characterization **materials definitions page**.

Household hazardous waste element (HHWE): One of several solid waste **planning documents** required by the **Integrated Waste Management Act**. Every city, county and **regional agency** must specify how it will safely collect and dispose of household hazardous wastes generated by its residents. Please see **Title 14, California Code of Regulations, sections 18750 et seq.**

Indian country: Territory controlled by Native American tribal governments is considered sovereign and is not a part of the United States or the State of California. Counties and Board-permitted landfills and transformation facilities that accept waste from Indian country are importing waste. California jurisdictions sending waste to Indian country are exporting waste. Please see **Public Resources Code section 44201**.

Inflation-adjusted taxable sales: The total sales of taxable goods and services, as estimated by the California **Board of Equalization**, based on sales tax receipts and adjusted using the **consumer price index**. Used in the **Board-approved adjustment method** to estimate report-year waste generation. (Wholesale transactions are typically exempt from sales tax in the United States, as are taxes on many services.)

Integrated Waste Management Act (IWMA): Also known as AB 939 (Chapter 1095, Statutes of 1989), the IWMA created the Board, required each jurisdiction in the state to submit detailed **solid waste planning documents** for Board approval, set **diversion** requirements of 25 percent in 1995 and 50 percent in 2000, established a comprehensive statewide system of permitting, inspections, enforcement, and maintenance for solid waste facilities, and authorized local jurisdictions to impose fees based on the types or amounts of solid waste generated. A more detailed description of the IWMA is found in the Board's **legislative history overview**.

Jurisdiction: A city, county, a combined city and county, or a **regional agency** with the responsibility for meeting **Integrated Waste Management Act** requirements.

Materials recovery facility: More commonly called a MRF (pronounced "Murf"). An intermediate processing facility designed to remove recyclables and other valuable materials from the waste stream. A "dirty MRF" removes reusable materials from unseparated trash. A "clean MRF" separates materials from commingled recyclables, typically collected from residential or commercial curbside programs.

Maximum diversion rate: A calculation that selects default or standard adjustment factors—**population**, **employment**, **taxable sales**, **consumer price index**—resulting in the highest **diversion rate** for a **jurisdiction**.

Medical waste: Untreated medical waste regulated under the Medical Waste Management Act that is not defined as solid waste and cannot be disposed at **Board-permitted landfills** (see **Health and Safety Code section 117600** et seq.). Treated medical waste that is deemed to be solid waste may be disposed at Board-permitted solid waste facilities. For diversion rate measurement purposes, the host jurisdiction of a regional medical waste treatment facility that produces treated medical waste may subtract that tonnage from report-year disposal. Also, please see the **Department of Health Services medical waste Web pages**.

Measurement year: Any calendar year following the base-level year.

Measurement year generation: The estimate of a jurisdiction's combined tonnage of disposed and diverted wastes for any calendar year following the base-level year. The measurement year generation estimate is derived by using the adjustment method to adjust the base-level generation tonnage amount (14 CCR 18797.1[a][6]).

Minimum diversion rate: A calculation that selects default or standard adjustment factors—population, employment, taxable sales, consumer price index (CPI)—resulting in the lowest diversion rate for a jurisdiction.

New base year: See **Base-year generation tonnage**.

New generation study: See **Generation study**.

Nondisposal facility element (NDFE): One of a jurisdiction's **planning documents**, the NDFE identifies Board-permitted "non-disposal" facilities used by a jurisdiction to help reach the **IWMA**'s diversion mandates. Nondisposal facilities are primarily **materials recovery facilities**, compost facilities, and **transfer stations**, but a jurisdiction's NDFE may also discuss recycling centers, drop-off centers, and household hazardous waste facilities. Please see **Title 14, California Code of Regulations, sections 18752-18754**.

Nonrecyclable pulp or paper material: Paper products or fibrous materials that: (1) cannot be technically, feasibly, or legally recycled because of the manner in which the product or material has been manufactured, treated, coated, or constructed; or (2) have become soiled or contaminated and as a result cannot be technically, feasibly, or legally recycled (PRC section 40106[c]).

Non-residential solid waste: All solid waste other than residential solid waste, including self-haul waste from non-residential sources (14 CCR 18797.1[a][4]).

Organics: Materials that are or were recently living, such as leaves, grass, agricultural crop residues, or food scraps. Please see the waste characterization **materials page** and the Board's **organics Web site**.

Out-of state export: Export outside the boundaries of the State of California, or to Indian country within the boundaries of the State of California as defined in section 1151 of Title 18 of the United States Code (14 CCR 18801 [a][4]).

Planning documents: Please see **Countywide integrated waste management plan** or **Public Resources Code section 41750**.

Population: Estimated number of people living in a **jurisdiction**. Population is one of the four factors used in the **Board-approved adjustment method** to help estimate report-year waste generation. The federal census is the benchmark for population figures, but it is adjusted based on housing construction and demolition.

Procurement program: Programs that encourage the purchase of recycled-content products by companies, **jurisdictions**, and others. Joint recycled-content product purchasing pools and buy-recycled campaigns are two examples.

Program: The full range of source reduction, recycling, composting, special waste, or household hazardous waste activities undertaken by or in the jurisdiction or relating to management of the jurisdiction's waste stream to achieve the objectives identified in the source reduction, recycling, composting, and special waste components, and household hazardous waste element, respectively (14CCR 18720[a][53]).

Recycling: Per **Public Resources Code section 40180**, the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products that meet the quality standards necessary to be used in the marketplace.

Regional agency: A legal partnership of two or more **jurisdictions**, formed with Board approval, designed to meet **IWMA** requirements, to reduce the cost of reporting and tracking waste disposal and diversion, and to increase the diversion of solid waste from disposal facilities. Please see our **regional agencies** basics or our **list of Board-approved regional agencies and their membership**. Also, please see **Public Resources Code Section 40970**.

Regional diversion facility: A facility that accepts material for recycling from both within and without the jurisdiction of the city or county within which it is located; all material accepted by the facility has been source-separated for the purpose of the being processed prior to its arrival at the facility; the residual solid waste generated by the facility is a byproduct of the recycling that takes place at the facility; the facility is not a solid waste facility or solid waste handling operation pursuant to PRC section 43020; and the facility contributes to regional efforts to divert solid waste from disposal (PRC section 41782[a][2][b]).

Report year: The calendar year covered by an **annual report** prepared by a **jurisdiction**, detailing diversion programs implemented and the diversion rate achieved. **Title 14, California Code of Regulations, section 18794 (e)(1)** specifies annual reports are due August 1 of the year following the report year. For example, an annual report covering calendar year 1999 is due to the Board by August 1, 2000.

Report-year generation: The amount of waste generated in any **jurisdiction** during a **report year**, as indicated in that jurisdiction's **annual report**.

Residential sector: Waste stream segment generated by single- and multifamily residences, not by businesses or by government offices. The **commercial**, residential, and **self-haul** sectors make up the complete waste stream.

Residential solid waste: All solid waste originating from all single-family and multifamily dwellings, including self-haul wastes from residential sources [14 CCR 18797(a)(3)].

Restricted waste: Pre-1990 diverted material counted as diversion in the base year when **Public Resources Code section 41781.2** requirements are met. Restricted wastes include: agricultural wastes, inert solids (including inert solids used for structural fill), white-coated major appliances, and scrap metals. All new diversion of these materials counts toward achievement of the diversion requirements.

Reuse: The recovery or reapplication of a package or product for uses similar or identical to its originally intended application, without manufacturing or preparation processes that significantly alter the original package or product.

Self-haul sector: Waste that is hauled to a transfer, processing, or disposal facility by someone other than a franchise waste hauler or by someone whose primary business is not waste hauling. The **commercial**, **residential**, and **self-haul sectors** make up the complete waste stream.

Sewage Sludge: Residual solids and semi-solids resulting from the treatment of waste water, but this does not include waste water effluent discharged from such treatment processes (14 CCR 18720[a][66]).

Sludge: Residual solids and semi-solids resulting from the treatment of water, waste water, and/or other liquids. Includes sewage sludge and sludge derived from industrial processes, but does not include effluent discharged from such treatment processes (14 CCR 18720[a][69]).

Solid Waste: All putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, dewatered, treated, or chemically fixed sewage sludge which is not hazardous waste, manure, vegetable or animal solid and semisolid wastes, and other discarded solid and semisolid wastes. Does not include hazardous waste, radioactive waste pursuant to the Radiation Control Law, or medical waste pursuant to the Medical Waste Management Act (PRC sections 40191[a], and 40191[b]).

Solid Waste Facility: Includes a solid waste transfer or processing station, a composting facility, a transformation facility, and a disposal facility (PRC section 40194).

Solid Waste Generation: The study undertaken by a jurisdiction to characterize its solid waste. Study stream and comply with all the requirements of 14 CCR 18722, 18724, and 18726 (14 CCR 18720[a][70].

Solid waste generation study (SWGS): The waste characterization component of the **SRRE**, which contains information on the types and amounts of waste disposed and diverted within a jurisdiction and which establishes the base level for measuring future diversion achievement. Please see **Title 14 California Code of Regulations, section 18722** for more details. The study is required and described by Public Resources Code sections **41003**, **41030** (cities) and sections **41303** and **41330** (counties).

Source reduction: Per **Public Resources Code section 40196**, "source reduction" means any action which causes a net reduction in the generation of solid waste. Source reduction includes, but is not limited to, reducing the use of nonrecyclable materials, replacing disposable materials and products with reusable materials and products, reducing packaging, reducing the amount of yard wastes generated, establishing garbage rate structures with incentives to reduce waste tonnage generated, and increasing the efficiency of the use of paper, cardboard, glass, metal, plastic, and other materials. See the PARIS list of **source reduction programs and codes**.

Source reduction and recycling element (SRRE): Plans prepared by all jurisdictions in accordance with Public Resources Code **section 41000 et seq. (cities)** and **section 41300 et seq. (counties)**. The SRRE sets forth a jurisdiction's basic strategy for management of solid waste generated within its borders, with emphasis on implementation of **source reduction**, **recycling**, and **composting** programs. The SRRE should also identify the amount of landfill and/or **transformation** capacity necessary to dispose of solid waste that cannot be reduced at the source, recycled, or composted. It is one of several solid waste planning documents required by the **IWMA**.

Special waste: For waste characterization purposes, special waste is waste that poses a chronic toxicity hazard to human health or the environment, requiring special collection, treatment, handling, storage, or transfer techniques. Per **Title 14, California Code of Regulations, section 18722 (j)(8)**, special wastes include:

- Ash
- Sewage sludge
- Industrial sludge
- Asbestos
- Auto shredder waste
- Auto bodies
- Other special wastes

Summary plan: A solid waste planning document required by **Public Resources Code section 41751**, in which counties or regional agencies provide an overview of significant waste management problems faced by the jurisdiction, along with specific steps to be taken, independently and in concert with cities within their boundaries, to comply with the **IWMA**.

SWIS number: A unique number assigned by the Board to each landfill, transfer station, transformation facility, materials recovery facility, or other Board-permitted waste processing facility, and used by the **solid waste information system database**. The first two digits signify the county where the facility is located; the last four digits identify the specific facility.

Taxable sales: Please see **inflation-adjusted taxable sales**.

Tipping fee: The fee charged for unloading solid waste at a landfill or transfer station.

Transfer station/processing facility: A facility that receives, handles, separates, converts, or otherwise processes solid waste, whose activities are governed by the registration permit tier or full solid waste facility permit requirements. Such facilities typically transfer solid waste directly from one container to another, or from one vehicle to another for transport, or temporarily store solid waste prior to final disposal at a **Board-permitted landfill** or **transformation facility**. Please see **Title 14, California Code of Regulations, sections 17400 et seq.**

Transformation: Incineration, pyrolysis, distillation, gasification, or biological conversion other than composting. Transformation **(Public Resources Code section 40201)** does not include composting or biomass conversion. For purposes of diversion rate measurement, only waste sent to Board-permitted transformation facilities is used in diversion rate calculations. Transformation counts as disposal, except in special circumstances beginning in the year 2000, when limited amounts of waste sent to Board-permitted transformation facilities may count as diversion.

Transformation facility: A facility whose principal function is to convert, combust, or otherwise process solid waste by incineration, pyrolysis, destructive distillation, gasification, or to chemically or biologically process solid waste for the purpose of volume reduction, synthetic fuel production, or energy recovery. Transformation facilities do not include biomass conversion or composting facilities. Please see **Title 14, California Code of Regulations, section 18720**.

Waste characterization: The act of determining the types and amounts of materials in the disposed waste stream. Waste characterization studies typically involve the sorting and weighing of samples of disposed waste.

Waste diversion: Please see **Diversion**

Waste generation: Please see **Generation**.

Waste prevention: Please see **Source reduction**.

Waste reduction: The combined efforts of waste prevention, reuse, composting, and recycling practices. Some groups use this term synonymously with **source reduction** and waste prevention, so check how it is being used to avoid confusion. Typically, waste reduction includes waste prevention and recycling. A number of local jurisdictions in California, public interest groups, and a few states use waste reduction synonymously with waste prevention.

Waste stream: Waste material output of a community, region, or state.

White goods: Discarded major appliances of any color. These items are often enamel-coated. Examples: washing machines, clothes dryers, hot water heaters, stoves, and refrigerators. This definition does not include electronics, such as televisions and stereos, which are known as "**brown goods**."

Xeriscaping: Landscaping using drought-tolerant or desert-like plants.

Abbreviations

AB	Assembly Bill (State)
ACR	Assembly Concurrence Resolution
BOE	Board of Equalization
Cal/EPA	California Environmental Protection Agency
CIWMB	California Integrated Waste Management Board
CPI	Consumer price index
DRS	Disposal Reporting System
EA	Enforcement Agency
EDD	Employment Development Department
HHW	Household Hazardous Waste
HHWE	Household Hazardous Waste Element
IWM	Integrated Waste Management
IWMA	Integrated Waste Management Act
IWMB	Integrated Waste Management Board
IWMF	Integrated Waste Management Fund
IWMP	Integrated Waste Management Plan
JPA	Joint Powers Agreement
LEA	Local Enforcement Agency
LGTAC	Local Government Technical Advisory Committee
MOU	Memorandum of Understanding
MRF	Materials Recovery Facility
MSW	Municipal Solid Waste
NDFE	Nondisposal Facility Element
RMDZ	Recycling Market Development Zone
SB	Senate Bill (State)
SRRE	Source Reduction and Recycling Element
SWF	Solid Waste Facility
SWFP	Solid Waste Facilities Permit

SB 2202 Working Group Member List

Name	Interest Group	Affiliation	Working Group(s)
Jami Aggers	Local Government	Stanislaus County	Adjustment Method and Synthesis
Paul Alva	Local Government	Los Angeles County	Adjustment Method
Mary Andrews	Local Government	Orange County	Disposal Reporting and Synthesis
Richard Anthony	Environmental and Consultant	California Resource Recovery Association (CRRA), and Richard Anthony Associates	Adjustment Method, Alternatives, Disposal Reporting, and Synthesis
Dave Ault	Industry	Taormina Industries, LLC	Disposal Reporting and Synthesis
Alan Balch	Education	Ph.D. Candidate, U. C. Santa Cruz	Alternatives and Synthesis
Bob Barker	Local Government	Los Angeles County	Alternatives
Cynthia Battenberg	Industry	Browning-Ferris Industries (BFI)	Alternatives and Synthesis
Rick Best	Environmental	Californians Against Waste	Alternatives
Diana Bray	Local Government	Town of Apple Valley	Disposal Reporting
Bonnie Cantlon	Consultant	Cantlon Consulting Company	Adjustment Method and Synthesis
Kevin Carunchio	Local Government	City of San Ramon	Disposal Reporting
Liz Citrino	Local Government and Environmental	Humboldt County, and California Resource Recovery Association (CRRA)	Alternatives
Tina Clark	Local Government	City of Monterey Park, and San Gabriel Valley Council of Governments	Disposal Reporting
Karen Coca	Local Government	City of Los Angeles	Alternatives and Synthesis
Susan Collins	Consultant	Hilton Farnkopf & Hobson, LLC	Adjustment Method
Dave Davis	Consultant	Southern California Consultant	Disposal Reporting
John Davis	Local Government	Mojave Desert and Mountain Integrated Waste Management Authority	Alternatives and Synthesis
Joseph Delaney	Local Government	City of Santa Monica	Disposal Reporting and Synthesis

Steve Devine	Local Government	West Contra Costa Integrated Waste Management Authority	Disposal Reporting
Connie Donovan	Local Government	City of Vacaville	Alternatives
Sean Edgar	Consultant and Industry	California Refuse Removal Council (CRRC), and Edgar & Associates, Inc.	Adjustment Method and Disposal Reporting
Lynn France	Industry	Browning-Ferris Industries (BFI)/Allied Waste	Adjustment Method and Disposal Reporting
William George	Local Government	Los Angeles County Sanitation District	Disposal Reporting
Jim Greco	Consultant	California Waste Associates	Adjustment Method, Alternatives, and Disposal Reporting
Jim Hemminger	Local Government (Rural)	Environmental Services Joint Powers Authority	Alternatives and Synthesis
Tom Horton	Local Government	San Joaquin County	Disposal Reporting
David Huerta	Local Government	City of Fremont	Adjustment Method, Alternatives, and Synthesis
J. Michael Huls	Local Government	City of Diamond Bar	Adjustment Method
Cary Kalscheuer	Local Government	City of Azusa	Alternatives
Gerard Kapuscik	Local Government	Ventura County	Adjustment Method and Disposal Reporting
Doug Kobold	Local Government	Sacramento County	Disposal Reporting and Synthesis
Michelle Leonard	Consultant	SCS Engineers	Alternatives
Jaime Lozano	Consultant	Jaime Lozano Environmental	Alternatives
Joyce Marshall-Woods	Local Government	Western Riverside Council of Governments	Adjustment Method and Disposal Reporting
Lorell Miller	Local Government	Yolo County	Alternatives
Mark Murray	Environmental	Californians Against Waste	Alternatives
William O'Toole	Consultant	Economics Inc.	Adjustment Method and Synthesis
Margaret Rands	Local Government	Santa Clara County	Disposal Reporting and Synthesis
Rex Richardson	Industry and Local Government	Norcal/San Bernardino, Inc., and San Bernardino County	Disposal Reporting
Rosalind Risser Yasui	Consultant	EcoSynthesis	Alternatives

Carlos Ruiz	Local Government	Los Angeles County	Disposal Reporting and Synthesis
Kelly Runyon	Consultant	Environmental Science Associates	Adjustment Method
Paul Ryan	Consultant, Local Government, and Industry	P.F. Ryan and Associates, Inc., California Refuse Removal Council (CRRC), and Inland Empire Disposal Association	Disposal Reporting
Dan Sicular	Consultant	Environmental Science Associates	Alternatives
Kent Stoddard	Industry	Waste Management, Inc.	Alternatives
Larry Sweetser	Local Government	Environmental Services Joint Powers Authority	Disposal Reporting
Chris Taylor	Industry	B & J Drop Box Sanitary Landfill	Disposal Reporting
Georgia Thompson	Consultant	Brown, Vence and Associates, Inc.	Disposal Reporting
Eugene Tseng	Education and Consultant	E. Tseng and Associates, and UCLA Extension	Adjustment Method and Synthesis
Dennis Wambem	Consultant	Land Use Economics	Adjustment Method
Chuck White	Industry	Waste Management	Disposal Reporting
Mark White	Consultant	Pacific Waste Consulting Group	Disposal Reporting
Bill Worrell	Local Government	San Luis Obispo County Integrated Waste Management Authority	Alternatives and Synthesis

Board-Approved/Board-Accepted and Preliminary Diversion Rates: 1995–1999 (as of November 2001)

The following is a table of each jurisdiction in the state and their diversion rates from 1995 to 1999.

Key: Bold = Preliminary Diversion Rate; M = Member of Regional Agency; ND = Unable to Determine Diversion Rate; NF = Regional Agency Not Formed Yet; NI = Newly Incorporated City Not Subject to Biennial Review.
Board Approved: The Board has determined that a jurisdiction has implemented programs and met the diversion requirements in a goal year.
Board Accepted: The Board has evaluated a jurisdiction's progress in meeting the diversion requirement in a non-goal year and accepted its progress.
Preliminary Data: The Board has not yet completed the biennial review for that jurisdiction for that report year. All diversion rate data is preliminary, has not been reviewed by the Board, and is subject to change.

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Alameda	Alameda	48	48	56	59	**37**
	Alameda-Unincorporated	56	51	59	58	**64**
	Albany	42	52	61	60	**56**
	Berkeley	41	41	41	42	**40**
	Dublin	26	37	43	31	**33**
	Emeryville	51	61	49	41	**16**
	Fremont	49	54	50	47	**48**
	Hayward	41	39	44	45	**40**
	Livermore	26	25	45	37	**38**
	Newark	27	34	49	50	**41**
	Oakland	27	34	39	40	**33**
	Piedmont	47	47	50	52	**60**
	Pleasanton	28	35	47	50	**23**
	San Leandro	34	37	45	46	**54**
	Union City	49	53	62	61	**59**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Alpine	Alpine-Unincorporated	62	62	71	73	**52**
Amador	Amador City	41	48	M	M	M
	Amador County Integrated Solid Waste Management Agency	NF	NF	48	45	**60**
	Amador-Unincorporated	77	73	M	M	**54**
	Ione	80	83	M	M	M
	Jackson	45	34	M	M	M
	Plymouth	62	67	M	M	M
	Sutter Creek	42	64	M	M	M
Butte	Biggs	ND	ND	M	M	M
	Butte County Regional Waste Management Authority	NF	NF	32	33	**19**
	Butte-Unincorporated	16	29	M	M	M
	Chico	43	42	52	41	**48**
	Oroville	36	ND	30	43	**35**
	Paradise	ND	ND	M	M	M
Calaveras	Angels Camp	54	56	44	34	**34**
	Calaveras-Unincorporated	38	32	40	39	**36**
Colusa	Colusa County Regional Agency	74	73	72	70	**43**
Contra Costa	Antioch	ND	ND	ND	ND	**37**
	Brentwood	40	38	37	41	**-110**
	Clayton	ND	ND	25	37	**17**
	Concord	16	28	19	27	**26**
	Contra Costa-Unincorporated	49	54	38	35	**20**
	Danville	34	32	42	40	**30**
	Lafayette	30	30	42	38	**32**
	Martinez	ND	ND	ND	ND	**45**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Contra Costa -continued	Moraga	29	38	53	55	**49**
	Oakley	M	M	M	M	**NI**
	Orinda	25	36	46	41	**44**
	Pittsburg	ND	ND	ND	59	**68**
	Pleasant Hill	16	29	28	34	**19**
	San Ramon	40	37	53	49	**53**
	Walnut Creek	32	34	50	53	**44**
	West Contra Costa Integrated Waste Management Authority	37	33	34	29	**32**
Del Norte	Del Norte Solid Waste Management Authority	64	55	41	40	**45**
El Dorado	El Dorado-Unincorporated	34	37	35	38	**38**
	Placerville	27	28	40	40	**49**
	South Lake Tahoe	37	38	40	38	**39**
Fresno	Clovis	57	58	59	56	**58**
	Coalinga	ND	ND	33	34	**41**
	Firebaugh	ND	ND	45	44	**53**
	Fowler	82	83	84	83	**84**
	Fresno	25	24	ND	ND	**22**
	Fresno-Unincorporated	38	40	40	37	**37**
	Huron	52	27	26	12	**14**
	Kerman	ND	ND	28	ND	**24**
	Kingsburg	46	34	17	28	**10**
	Mendota	25	22	24	21	**26**
	Orange Cove	88	88	87	89	**88**
	Parlier	66	69	71	69	**71**
	Reedley	27	28	66	64	**65**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Fresno-continued	San Joaquin	22	31	9	20	**-3**
	Sanger	38	36	48	49	**48**
	Selma	12	23	16	18	**21**
Glenn	Glenn County Waste Management Regional Agency	32	38	37	40	**49**
Humboldt	Arcata	42	47	48	52	**39**
	Blue Lake	88	21	90	90	**92**
	Eureka	33	31	28	28	**20**
	Ferndale	33	50	51	49	**47**
	Fortuna	35	37	34	33	**5**
	Humboldt-Unincorporated	66	75	67	71	**75**
	Rio Dell	37	30	39	42	**39**
	Trinidad	62	53	65	63	**72**
Imperial	Brawley	39	40	3	-11	**-12**
	Calexico	37	35	ND	ND	**5**
	Calipatria	55	59	76	24	**37**
	El Centro	39	48	43	33	**27**
	Holtville	50	42	38	6	**20**
	Imperial	47	63	45	40	**29**
	Imperial-Unincorporated	80	81	82	87	**85**
	Westmorland	ND	ND	**31**	**19**	**28**
Inyo	Inyo Regional Waste Management Agency	30	27	18	23	**41**
Kern	Arvin	33	39	34	21	**32**
	Bakersfield	34	38	38	35	**36**
	California City	61	60	60	61	**54**
	Delano	39	39	42	39	**32**
	Kern-Unincorporated	46	47	48	47	**50**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Kern-continued	Maricopa	60	35	41	61	**56**
	McFarland	32	47	38	45	**34**
	Ridgecrest	48	54	54	51	**49**
	Shafter	30	25	71	68	**60**
	Taft	51	57	75	63	**63**
	Tehachapi	67	77	77	81	**84**
	Wasco	59	54	62	57	**56**
Kings	Avenal	ND	ND	5	2	**-22**
	Kings Waste and Recycling Authority	ND	ND	ND	37	**45**
Lake	Clearlake	ND	ND	**-20**	**-20**	**-41**
	Lakeport	ND	ND	**-10**	**1**	**14**
	Lake-Unincorporated	47	44	34	32	**31**
Lassen	Lassen Regional Solid Waste Management Authority	ND	ND	**51**	**49**	**54**
	Lassen-Unincorporated	71	66	M	M	M
Los Angeles	Agoura Hills	ND	ND	29	28	**29**
	Alhambra	32	12	41	ND	**11**
	Arcadia	45	37	34	31	**24**
	Artesia	27	21	27	30	**20**
	Avalon	ND	ND	12	13	**78**
	Azusa	17	22	34	35	**32**
	Baldwin Park	ND	ND	**-40**	**-8**	**-12**
	Bell	24	26	42	44	**31**
	Bell Gardens	ND	ND	ND	ND	**34**
	Bellflower	11	41	37	46	**60**

County	**Jurisdiction**	**Diversion Rates (In percentages) Board Approved**		**Board Accepted**		
		1995	**1996**	**1997**	**1998**	**1999**
Los Angeles-continued	Beverly Hills	26	39	60	50	**42**
	Bradbury	65	51	ND	ND	**74**
	Burbank	53	54	58	62	**60**
	Calabasas	29	45	26	21	**35**
	Carson	43	43	49	56	**71**
	Cerritos	18	41	51	44	**32**
	Claremont	ND	ND	ND	ND	**40**
	Commerce	32	26	42	57	**15**
	Compton	ND	ND	**-48**	**-27**	**-49**
	Covina	ND	ND	28	ND	**25**
	Cudahy	40	39	43	47	**62**
	Culver City	38	27	50	37	**31**
	Diamond Bar	22	25	ND	34	**27**
	Downey	31	45	32	42	**58**
	Duarte	ND	ND	**8**	**-39**	**7**
	El Monte	14	28	29	ND	**24**
	El Segundo	59	58	64	76	**73**
	Gardena	ND	ND	**-95**	**-146**	**-82**
	Glendale	32	35	46	43	**47**
	Glendora	26	24	27	ND	**34**
	Hawaiian Gardens	ND	ND	51	47	**54**
	Hawthorne	ND	ND	52	48	**46**
	Hermosa Beach	45	24	ND	45	**35**
	Hidden Hills	26	40	50	35	**61**
	Huntington Park	32	25	40	46	**46**
	Industry	36	38	ND	48	**52**
	Inglewood	28	36	29	34	**51**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Los Angeles-continued	Irwindale	48	26	43	40	**55**
	La Canada Flintridge	ND	ND	**-14**	**-11**	**-1**
	La Habra Heights	ND	ND	24	35	**31**
	La Mirada	19	28	42	42	**21**
	La Puente	ND	ND	**-47**	**-73**	**-57**
	La Verne	ND	ND	**-81**	**-86**	**-59**
	Lakewood	ND	ND	ND	ND	**23**
	Lancaster	33	34	51	51	**51**
	Lawndale	25	37	17	47	**44**
	Lomita	ND	ND	ND	32	**57**
	Long Beach	21	28	ND	33	**31**
	Los Angeles	45	46	46	46	**49**
	Los Angeles-Unincorporated	27	29	41	40	**40**
	Lynwood	20	27	24	28	**-11**
	Malibu	18	31	50	29	**18**
	Manhattan Beach	ND	ND	ND	32	**33**
	Maywood	20	30	35	41	**51**
	Monrovia	24	33	30	31	**37**
	Montebello	ND	ND	ND	ND	**51**
	Monterey Park	24	24	32	36	**24**
	Norwalk	ND	ND	ND	ND	**28**
	Palmdale	63	61	60	58	**51**
	Palos Verdes Estates	51	52	45	ND	**52**
	Paramount	ND	ND	ND	37	**35**
	Pasadena	42	37	35	41	**40**
	Pico Rivera	ND	ND	ND	ND	**35**
	Pomona	27	34	51	56	**-23**

County	**Jurisdiction**	**Diversion Rates (In percentages) Board Approved**		**Board Accepted**		
		1995	**1996**	**1997**	**1998**	**1999**
Los Angeles-continued	Rancho Palos Verdes	28	20	38	44	**31**
	Redondo Beach	35	29	34	37	**19**
	Rolling Hills	32	8	47	43	**21**
	Rolling Hills Estates	ND	ND	51	47	**72**
	Rosemead	24	32	29	ND	**18**
	San Dimas	ND	ND	ND	43	**51**
	San Fernando	32	43	**65**	**-6**	**10**
	San Gabriel	ND	ND	**-67**	**-74**	**-89**
	San Marino	21	48	45	41	**17**
	Santa Clarita	28	42	50	51	**25**
	Santa Fe Springs	ND	ND	ND	62	**72**
	Santa Monica	15	24	52	38	**43**
	Sierra Madre	25	40	**-2**	**-11**	**-13**
	Signal Hill	19	38	53	51	**15**
	South El Monte	ND	ND	ND	63	**63**
	South Gate	ND	ND	ND	42	**42**
	South Pasadena	26	26	33	38	**23**
	Temple City	ND	ND	ND	38	**46**
	Torrance	ND	ND	**-51**	**-53**	**-35**
	Vernon	ND	ND	ND	43	**38**
	Walnut	ND	ND	ND	ND	**37**
	West Covina	43	25	43	29	**45**
	West Hollywood	37	25	55	53	**32**
	Westlake Village	30	23	34	28	**32**
	Whittier	31	32	46	35	**27**
Madera	Chowchilla	61	60	**59**	**24**	**20**
	Madera	26	22	27	21	**50**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Madera-continued	Madera-Unincorporated	31	41	39	45	**45**
Marin	Marin County Hazardous and Solid Waste Management Authority	32	41	47	53	**42**
Mariposa	Mariposa-Unincorporated	28	30	30	30	**31**
Mendocino	Fort Bragg	43	44	28	43	**41**
	Mendocino-Unincorporated	29	31	**32**	**26**	**15**
	Point Arena	42	46	27	32	**12**
	Ukiah	26	25	**24**	**21**	**20**
	Willits	29	26	**26**	**30**	**17**
Merced	Merced County Solid Waste Regional Agency	50	48	47	43	**43**
Modoc	Alturas	ND	ND	ND	22	**49**
	Modoc-Unincorporated	ND	ND	ND	16	**36**
Mono	Mammoth Lakes	ND	ND	26	20	**32**
	Mono-Unincorporated	ND	ND	44	50	**56**
Monterey	Carmel-by-the-Sea	26	34	33	37	**42**
	Del Rey Oaks	31	39	37	23	**39**
	Gonzales	ND	ND	ND	ND	**49**
	Greenfield	ND	ND	ND	ND	**49**
	King City	ND	ND	**-3**	**-6**	**1**
	Marina	43	52	59	57	**58**
	Monterey	23	28	35	54	**60**
	Monterey-Unincorporated	21	23	25	25	**30**
	Pacific Grove	26	35	36	38	**40**
	Salinas	22	22	14	15	**19**
	Sand City	7	30	40	37	**45**
	Seaside	38	47	49	47	**51**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Monterey-continued	Soledad	53	64	48	49	**52**
Napa	American Canyon	24	42	39	52	**-10**
	Napa	27	31	41	54	**32**
	Napa-Unincorporated	29	27	38	47	**-35**
	St Helena	M	M	M	M	M
	Upper Valley Waste Management Agency	53	57	52	56	**59**
Nevada	Grass Valley	57	59	64	57	**56**
	Nevada City	51	34	50	60	**67**
	Nevada-Unincorporated	47	45	48	41	**41**
	Truckee	38	35	35	30	**30**
Orange	Anaheim	44	46	44	42	**50**
	Brea	39	41	27	28	**32**
	Buena Park	28	29	26	35	**44**
	Costa Mesa	28	26	ND	51	**45**
	Cypress	62	66	85	59	**58**
	Dana Point	19	22	ND	37	**41**
	Fountain Valley	51	53	48	44	**47**
	Fullerton	32	35	51	55	**58**
	Garden Grove	46	52	48	44	**55**
	Huntington Beach	45	49	43	63	**66**
	Irvine	20	24	ND	40	**37**
	La Habra	32	34	37	39	**41**
	La Palma	52	56	40	50	**62**
	Laguna Beach	ND	ND	ND	40	**49**
	Laguna Hills	55	49	59	28	**22**
	Laguna Niguel	40	41	39	34	**37**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Orange-continued	Laguna Woods	M	M	M	M	NI
	Lake Forest	ND	ND	ND	62	**68**
	Los Alamitos	30	35	58	38	**32**
	Mission Viejo	38	46	ND	42	**40**
	Newport Beach	51	45	40	45	**47**
	Orange	34	38	33	36	**35**
	Orange-Unincorporated	40	38	31	21	**18**
	Placentia	36	53	54	53	**59**
	San Clemente	ND	ND	ND	37	**39**
	San Juan Capistrano	26	29	ND	42	**45**
	Santa Ana	34	27	ND	54	**56**
	Seal Beach	63	65	69	56	**49**
	Stanton	27	11	21	46	**47**
	Tustin	17	25	25	46	**40**
	Villa Park	49	56	67	62	**67**
	Westminster	55	35	ND	54	**59**
	Yorba Linda	43	57	59	59	**64**
Placer	Auburn	28	17	16	37	**46**
	Colfax	ND	ND	ND	ND	**50**
	Lincoln	22	37	45	47	**34**
	Loomis	ND	ND	26	42	**47**
	Placer-Unincorporated	34	42	46	37	**38**
	Rocklin	7	32	37	32	**33**
	Roseville	30	37	43	39	**16**
Plumas	Plumas-Unincorporated	37	29	45	44	**36**
	Portola	ND	ND	22	28	**-20**
Riverside	Banning	42	39	40	36	**42**
	Beaumont	22	26	32	72	**37**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Riverside-continued	Blythe	ND	ND	**13**	**10**	**12**
	Calimesa	36	37	37	32	**38**
	Canyon Lake	54	45	46	55	**52**
	Cathedral City	32	34	36	34	**29**
	Coachella	54	52	55	56	**57**
	Corona	41	35	38	34	**37**
	Desert Hot Springs	ND	ND	**23**	**11**	**15**
	Hemet	36	32	54	55	**59**
	Indian Wells	44	45	38	45	**36**
	Indio	44	45	51	50	**48**
	La Quinta	42	45	52	54	**43**
	Lake Elsinore	47	55	49	43	**41**
	Moreno Valley	30	38	35	36	**48**
	Murrieta	28	28	27	29	**39**
	Norco	47	51	51	54	**58**
	Palm Desert	57	56	57	51	**52**
	Palm Springs	40	47	48	47	**50**
	Perris	43	42	45	45	**45**
	Rancho Mirage	50	55	54	46	**46**
	Riverside	53	55	57	57	**59**
	Riverside-Unincorporated	36	48	47	46	**48**
	San Jacinto	33	34	32	31	**53**
	Temecula	61	57	58	53	**45**
Sacramento	Folsom	48	55	52	56	**37**
	Galt	ND	ND	ND	41	**64**
	Isleton	18	31	41	54	**41**
	Sacramento	45	45	49	47	**39**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Sacramento-continued	Sacramento County/City of Citrus Heights Regional Agency	NF	NF	25	39	**31**
	Sacramento-Unincorporated	25	28	M	M	M
San Benito	San Benito County Integrated Waste Management Regional Agency	ND	ND	**53**	**24**	**10**
San Bernardino	Adelanto	ND	ND	**-59**	**-76**	**-74**
	Apple Valley	19	26	40	34	**39**
	Barstow	25	33	51	47	**53**
	Big Bear Lake	ND	ND	ND	56	**59**
	Chino	24	37	35	41	**48**
	Chino Hills	34	41	37	48	**35**
	Colton	32	30	ND	ND	**54**
	Fontana	15	29	31	38	**34**
	Grand Terrace	30	38	48	48	**53**
	Hesperia	39	38	45	41	**39**
	Highland	31	29	27	29	**34**
	Loma Linda	ND	ND	**19**	**28**	**32**
	Montclair	28	39	28	37	**37**
	Needles	24	24	17	18	**28**
	Ontario	ND	ND	20	17	**26**
	Rancho Cucamonga	26	35	37	37	**45**
	Redlands	35	45	45	45	**42**
	Rialto	43	45	48	54	**55**
	San Bernardino	23	35	44	43	**46**
	San Bernardino-Unincorporated	44	44	37	25	**41**
	Twentynine Palms	40	39	41	43	**49**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
San Bernardino-continued						
	Upland	23	29	36	37	**38**
	Victorville	22	22	ND	ND	**24**
	Yucaipa	38	31	39	44	**41**
	Yucca Valley	58	64	63	63	**66**
San Diego	Carlsbad	57	48	50	44	**41**
	Chula Vista	42	42	41	39	**36**
	Coronado	36	27	23	12	**51**
	Del Mar	40	36	35	ND	**24**
	El Cajon	43	51	42	60	**63**
	Encinitas	46	49	51	40	**47**
	Escondido	49	45	48	43	**43**
	Imperial Beach	40	41	42	40	**44**
	La Mesa	47	41	50	48	**42**
	Lemon Grove	19	34	37	ND	**15**
	National City	34	48	38	38	**47**
	Oceanside	48	47	49	47	**47**
	Poway	55	56	53	51	**53**
	San Diego	35	45	49	46	**45**
	San Diego-Unincorporated	48	45	50	45	**48**
	San Marcos	47	45	51	48	**44**
	Santee	39	52	45	30	**35**
	Solana Beach	48	52	53	42	**47**
	Vista	43	48	55	51	**42**
San Francisco	San Francisco	36	35	33	40	**32**
San Joaquin	Escalon	28	33	35	3	**5**
	Lathrop	41	33	ND	74	**70**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
San Joaquin-continued	Lodi	43	44	29	37	**30**
	Manteca	31	24	27	28	**18**
	Ripon	66	74	74	73	**73**
	San Joaquin-Unincorporated	27	32	21	20	**34**
	Stockton	24	27	24	24	**15**
	Tracy	28	41	31	39	**30**
San Luis Obispo	Arroyo Grande	20	29	M	M	M
	Atascadero	49	44	M	M	M
	El Paso De Robles	30	42	33	28	**28**
	Grover Beach	38	39	M	M	M
	Morro Bay	28	37	M	M	M
	Pismo Beach	36	30	M	M	M
	San Luis Obispo	32	35	M	M	M
	San Luis Obispo County Integrated Waste Management Authority	NF	NF	0	50	**51**
	San Luis Obispo-Unincorporated	ND	ND	M	M	M
San Mateo	Atherton	ND	ND	15	21	**29**
	Belmont	36	33	43	48	**48**
	Brisbane	25	34	40	32	**3**
	Burlingame	37	41	42	40	**45**
	Colma	ND	ND	ND	47	**51**
	Daly City	ND	ND	**-7**	**1**	**7**
	East Palo Alto	ND	ND	31	25	**47**
	Foster City	27	25	54	50	**37**
	Half Moon Bay	ND	ND	ND	32	**10**
	Hillsborough	ND	ND	25	12	**0**
	Menlo Park	36	34	39	30	**40**

County	**Jurisdiction**	**Diversion Rates (In percentages) Board Approved**		**Board Accepted**		
		1995	**1996**	**1997**	**1998**	**1999**
San Mateo-continued	Millbrae	30	12	31	40	**49**
	Pacifica	36	26	30	28	**26**
	Portola Valley	ND	ND	**3**	**-9**	**-43**
	Redwood City	ND	ND	43	46	**44**
	San Bruno	29	19	33	39	**46**
	San Carlos	34	38	39	34	**39**
	San Mateo	40	33	42	29	**34**
	San Mateo-Unincorporated	30	34	33	26	**25**
	South San Francisco	26	27	36	39	**35**
	Woodside	ND	ND	**-77**	**-71**	**-134**
Santa Barbara	Buellton	39	41	48	67	**68**
	Carpinteria	78	78	70	58	**60**
	Guadalupe	44	45	48	31	**36**
	Lompoc	48	56	60	55	**54**
	Santa Barbara	ND	ND	ND	34	**41**
	Santa Barbara-Unincorporated	30	30	32	37	**41**
	Santa Maria	46	50	54	53	**44**
	Solvang	20	21	39	36	**47**
Santa Clara	Campbell	39	40	41	36	**41**
	Cupertino	31	37	30	25	**34**
	Gilroy	20	17	18	23	**24**
	Los Altos	12	39	38	39	**41**
	Los Altos Hills	47	48	42	46	**43**
	Los Gatos	35	41	40	38	**46**
	Milpitas	33	42	46	41	**51**
	Monte Sereno	54	63	55	65	**63**
	Morgan Hill	31	35	34	37	**45**
	Mountain View	37	43	43	45	**47**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Santa Clara continued	Palo Alto	39	49	52	57	**59**
	San Jose	44	43	43	42	**46**
	Santa Clara	45	43	39	40	**38**
	Santa Clara-Unincorporated	43	53	48	42	**46**
	Saratoga	48	51	53	57	**55**
	Sunnyvale	46	51	51	52	**55**
Santa Cruz	Capitola	ND	ND	ND	ND	**42**
	Santa Cruz	35	36	36	41	**45**
	Santa Cruz-Unincorporated	21	20	21	19	**21**
	Scotts Valley	59	62	64	55	**59**
	Watsonville	25	26	35	32	**33**
Shasta	Anderson	ND	ND	5	5	M
	Redding	39	35	33	35	**28**
	Shasta County Waste Management Agency	NF	NF	NF	NF	**62**
	Shasta Lake	43	31	25	22	M
	Shasta-Unincorporated	60	69	72	68	M
Sierra	Sierra County Regional Agency	10	23	19	13	**29**
Siskiyou	Siskiyou County Integrated Solid Waste Management Regional Agency	22	24	24	41	**44**
Solano	Benicia	ND	ND	ND	43	**56**
	Dixon	12	28	ND	63	**61**
	Fairfield	22	19	12	26	**31**
	Rio Vista	ND	ND	ND	69	**72**
	Solano-Unincorporated	ND	ND	ND	49	**52**
	Suisun City	ND	ND	ND	58	**65**

County	Jurisdiction	Diversion Rates (In percentages) Board Approved		Board Accepted		
		1995	1996	1997	1998	1999
Solano-continued	Vacaville	ND	ND	ND	53	**54**
	Vallejo	15	24	ND	44	**46**
Sonoma	Sonoma County Waste Management Agency	39	39	38	39	**37**
Stanislaus	Ceres	34	33	36	17	**29**
	Hughson	25	24	27	25	**11**
	Modesto	19	21	ND	ND	**9**
	Newman	26	22	24	25	**21**
	Oakdale	25	23	26	25	**-6**
	Patterson	34	28	36	21	**13**
	Riverbank	25	39	34	27	**20**
	Stanislaus-Unincorporated	66	66	51	55	**65**
	Turlock	43	38	40	31	**35**
	Waterford	44	45	49	41	**37**
Tehama	Tehama County Sanitary Landfill Regional Agency	ND	ND	ND	43	**46**
Trinity	Trinity-Unincorporated	56	64	78	70	**66**
Tulare	Consolidated Waste Management Authority	NF	NF	51	51	**50**
	Dinuba	28	34	M	M	M
	Exeter	6	25	28	23	**12**
	Farmersville	24	22	25	31	**26**
	Lindsay	14	19	M	M	M
	Porterville	15	20	M	M	M
	Tulare	36	45	M	M	M
	Tulare-Unincorporated	ND	ND	43	41	**40**
	Visalia	25	36	M	M	M

County	**Jurisdiction**	**Diversion Rates (In percentages) Board Approved**		**Board Accepted**		
		1995	**1996**	**1997**	**1998**	**1999**
Tulare-continued	Woodlake	20	23	ND	42	**47**
Tuolumne	Sonora	69	54	45	54	**60**
	Tuolumne-Unincorporated	55	56	58	52	**46**
Ventura	Camarillo	31	34	41	35	**36**
	Fillmore	30	33	ND	ND	**34**
	Moorpark	25	36	37	20	**34**
	Ojai	40	44	39	43	**10**
	Oxnard	25	31	24	66	**70**
	Port Hueneme	28	39	38	37	**13**
	San Buenaventura	32	41	43	59	**58**
	Santa Paula	31	25	34	19	**23**
	Simi Valley	44	49	50	45	**44**
	Thousand Oaks	52	53	57	58	**66**
	Ventura-Unincorporated	32	34	45	34	**32**
Yolo	Davis	48	45	46	46	**43**
	West Sacramento	27	35	42	39	**41**
	Winters	50	30	29	26	**25**
	Woodland	42	41	41	43	**42**
	Yolo-Unincorporated	21	16	37	40	**36**
Yuba/Sutter	Yuba/Sutter Regional Waste Management Authority	ND	ND	20	23	**26**

Rural Status and Jurisdiction Population and Disposal Tons for 1999

Rural city = An incorporated city that has a geographic area of less than three square miles, a current waste disposal rate of less than 60 tons per day and is located in a rural area or an incorporated city that has a population density of less than 1,500 people per square mile a disposal rate of less than 60 tons per day.
X = Yes; * = Rural status of regional agencies is subject to change

Jurisdiction	**County**	**Population**	**Disposal**	**Population <25,000**	**Disposal <25,000**	**Status**
Alameda	Alameda	73,400	57,183			
Alameda-Unincorporated	Alameda	133,800	77,373			
Albany	Alameda	17,850	11,642	X	X	
Berkeley	Alameda	109,300	130,421			
Dublin	Alameda	28,800	39,510			
Emeryville	Alameda	7,300	31,334	X		
Fremont	Alameda	204,300	208,822			
Hayward	Alameda	128,200	182,468			
Livermore	Alameda	73,900	127,749			
Newark	Alameda	42,900	62,267			
Oakland	Alameda	401,400	509,961			
Piedmont	Alameda	11,650	5,802	X	X	
Pleasanton	Alameda	64,500	129,626			
San Leandro	Alameda	75,700	103,202			
Union City	Alameda	65,600	55,895			
Alpine-Unincorporated	Alpine	1,180	1,988	X	X	Rural
Amador County Integrated Solid Waste Management Agency	Amador County Integrated Solid Waste Management Agency	33,360	31,525			Rural*
Chico	Butte	53,600	65,962			
Oroville	Butte	12,550	15,383	X	X	Rural
Butte County Regional Waste Management Authority	Butte County Regional Waste Management Authority	128,940	130,064			

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Management Authority	Management Authority					
Angels Camp	Calaveras	2,990	3,197	X	X	Rural
Calaveras-Unincorporated	Calaveras	35,300	27,095			Rural
Colusa County Regional Agency	Colusa County Regional Agency	18,680	15,866	X	X	Rural*
Consolidated Waste Management Authority	Consolidated Waste Management Authority	197,725	179,474			
Antioch	Contra Costa	82,300	78,667			
Brentwood	Contra Costa	20,250	39,723	X		
Clayton	Contra Costa	11,200	9,210	X	X	
Concord	Contra Costa	115,500	126,091			
Contra Costa-Unincorporated	Contra Costa	179,200	185,497			
Danville	Contra Costa	40,250	34,422			
Lafayette	Contra Costa	24,450	23,034	X	X	
Martinez	Contra Costa	36,900	49,359			
Moraga	Contra Costa	16,850	10,481	X	X	
Orinda	Contra Costa	17,500	13,437	X	X	
Pittsburg	Contra Costa	53,500	44,779			
Pleasant Hill	Contra Costa	33,200	34,954			
San Ramon	Contra Costa	45,100	42,755			
Walnut Creek	Contra Costa	64,500	65,844			
Del Norte Solid Waste Management Authority	Del Norte Solid Waste Management Authority	27,600	18,097		X	Rural*
El Dorado-Unincorporated	El Dorado	118,900	76,760			
Placerville	El Dorado	9,325	9,520	X	X	
South Lake Tahoe	El Dorado	23,050	36,236	X		
Clovis	Fresno	68,400	45,111			
Coalinga	Fresno	10,400	8,362	X	X	
Firebaugh	Fresno	6,075	4,618	X	X	Rural

Jurisdiction	**County**	**Population**	**Disposal**	**Population <25,000**	**Disposal <25,000**	**Status**
Fowler	Fresno	3,810	3,038	X	X	Rural
Fresno	Fresno	413,200	454,102			
Fresno-Unincorporated	Fresno	178,200	153,238			
Huron	Fresno	5,675	4,088	X	X	Rural
Kerman	Fresno	7,525	9,821	X	X	Rural
Kingsburg	Fresno	9,175	8,187	X	X	Rural
Mendota	Fresno	7,675	5,215	X	X	Rural
Orange Cove	Fresno	7,825	3,517	X	X	Rural
Parlier	Fresno	11,050	5,641	X	X	Rural
Reedley	Fresno	20,450	13,625	X	X	
San Joaquin	Fresno	3,080	2,573	X	X	Rural
Sanger	Fresno	18,750	10,051	X	X	
Selma	Fresno	18,350	14,777	X	X	
Glenn County Waste Management Regional Agency	Glenn County Waste Management Regional Agency	26,850	18,137		X	Rural*
Arcata	Humboldt	16,200	11,920	X	X	
Blue Lake	Humboldt	1,230	569	X	X	Rural
Eureka	Humboldt	27,250	42,790			
Ferndale	Humboldt	1,360	812	X	X	Rural
Fortuna	Humboldt	10,050	10,061	X	X	
Humboldt-Unincorporated	Humboldt	66,500	31,287			Rural
Rio Dell	Humboldt	2,910	1,109	X	X	Rural
Trinidad	Humboldt	350	227	X	X	Rural
Brawley	Imperial	21,950	24,092	X	X	
Calexico	Imperial	26,500	23,038		X	
Calipatria	Imperial	7,525	3,679	X	X	Rural
El Centro	Imperial	38,450	41,513			
Holtville	Imperial	5,575	5,514	X	X	Rural
Imperial	Imperial	7,775	6,584	X	X	Rural

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Imperial-Unincorporated	Imperial	35,000	74,718			Rural
Westmorland	Imperial	1,740	1,574	X	X	Rural
Inyo Regional Waste Management Agency	Inyo Regional Waste Management Agency	18,200	13,446	X	X	Rural*
Arvin	Kern	11,350	7,850	X	X	
Bakersfield	Kern	230,000	258,330			
California City	Kern	8,700	3,788	X	X	Rural
Delano	Kern	34,350	31,839			
Kern-Unincorporated	Kern	270,100	286,411			
Maricopa	Kern	1,230	814	X	X	Rural
McFarland	Kern	9,200	5,990	X	X	Rural
Ridgecrest	Kern	27,350	41,571			
Shafter	Kern	11,600	18,804	X	X	Rural
Taft	Kern	8,925	10,447	X	X	
Tehachapi	Kern	12,800	4,970	X	X	
Wasco	Kern	20,250	13,602	X	X	
Avenal	Kings	12,250	10,807	X	X	Rural
Kings Waste and Recycling Authority	Kings Waste and Recycling Authority	113,550	86,655			
Clearlake	Lake	11,900	14,157	X	X	Rural
Lakeport	Lake	4,580	6,716	X	X	Rural
Lake-Unincorporated	Lake	38,800	30,945			Rural
Lassen Regional Solid Waste Management Authority	Lassen Regional Solid Waste Management Authority	33,400	13,942		X	Rural*
Agoura Hills	Los Angeles	21,800	35,026	X		
Alhambra	Los Angeles	91,200	90,759			
Arcadia	Los Angeles	53,000	120,838			
Artesia	Los Angeles	16,900	20,791	X	X	
Avalon	Los Angeles	3,560	1,912	X	X	

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Azusa	Los Angeles	45,500	77,601			
Baldwin Park	Los Angeles	75,900	85,662			
Bell	Los Angeles	37,500	28,892			
Bell Gardens	Los Angeles	45,100	44,130			
Bellflower	Los Angeles	67,300	39,590			
Beverly Hills	Los Angeles	34,400	71,221			
Bradbury	Los Angeles	940	1,690	X	X	
Burbank	Los Angeles	104,800	100,438			
Calabasas	Los Angeles	20,000	67,322	X		
Carson	Los Angeles	91,500	175,200			
Cerritos	Los Angeles	57,200	86,012			
Claremont	Los Angeles	35,250	30,093			
Commerce	Los Angeles	13,150	139,023	X		
Compton	Los Angeles	96,400	163,870			
Covina	Los Angeles	47,300	86,434			
Cudahy	Los Angeles	25,250	11,809		X	
Culver City	Los Angeles	42,050	75,646			
Diamond Bar	Los Angeles	58,000	63,196			
Downey	Los Angeles	100,600	92,814			
Duarte	Los Angeles	22,550	32,983	X		
El Monte	Los Angeles	118,000	206,404			
El Segundo	Los Angeles	16,600	61,372	X		
Gardena	Los Angeles	58,500	164,358			
Glendale	Los Angeles	200,400	189,321			
Glendora	Los Angeles	53,000	57,919			
Hawaiian Gardens	Los Angeles	14,950	8,598	X	X	
Hawthorne	Los Angeles	79,300	70,801			
Hermosa Beach	Los Angeles	19,300	23,251	X	X	
Hidden Hills	Los Angeles	2,010	7,623	X	X	
Huntington Park	Los Angeles	62,700	54,074			

Jurisdiction	**County**	**Population**	**Disposal**	**Population <25,000**	**Disposal <25,000**	**Status**
Industry	Los Angeles	690	181,559	X		
Inglewood	Los Angeles	119,500	95,506			
Irwindale	Los Angeles	1,190	54,263	X		
La Canada-Flintridge	Los Angeles	20,750	37,030	X		
La Habra Heights	Los Angeles	6,750	10,019	X	X	
La Mirada	Los Angeles	48,600	61,971			
La Puente	Los Angeles	41,600	98,319			
La Verne	Los Angeles	33,850	58,787			
Lakewood	Los Angeles	79,700	80,790			
Lancaster	Los Angeles	129,500	115,029			
Lawndale	Los Angeles	30,450	20,038		X	
Lomita	Los Angeles	20,650	15,864	X	X	
Long Beach	Los Angeles	450,800	785,513			
Los Angeles	Los Angeles	3,764,300	3,524,359			
Los Angeles-Unincorporated	Los Angeles	1,012,300	909,093			
Lynwood	Los Angeles	68,200	83,411			
Malibu	Los Angeles	12,900	61,667	X		
Manhattan Beach	Los Angeles	35,200	61,558			
Maywood	Los Angeles	29,950	15,862		X	
Monrovia	Los Angeles	40,350	56,512			
Montebello	Los Angeles	64,000	109,651			
Monterey Park	Los Angeles	66,300	68,275			
Norwalk	Los Angeles	103,000	107,075			
Palmdale	Los Angeles	119,600	104,256			
Palos Verdes Estates	Los Angeles	14,500	15,420	X	X	
Paramount	Los Angeles	55,700	76,157			
Pasadena	Los Angeles	141,900	301,667			
Pico Rivera	Los Angeles	63,600	136,908			
Pomona	Los Angeles	144,700	285,887			
Rancho Palos Verdes	Los Angeles	44,150	46,093			

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Redondo Beach	Los Angeles	66,500	85,939			
Rolling Hills	Los Angeles	2,030	6,271	X	X	
Rolling Hills Estates	Los Angeles	8,575	5,955	X	X	
Rosemead	Los Angeles	56,400	67,369			
San Dimas	Los Angeles	36,750	67,543			
San Fernando	Los Angeles	24,350	38,792	X		
San Gabriel	Los Angeles	40,950	67,613			
San Marino	Los Angeles	13,800	28,077	X		
Santa Clarita	Los Angeles	146,300	183,738			
Santa Fe Springs	Los Angeles	16,250	155,194	X		
Santa Monica	Los Angeles	93,800	178,987			
Sierra Madre	Los Angeles	11,550	14,766	X	X	
Signal Hill	Los Angeles	9,100	23,070	X	X	
South El Monte	Los Angeles	22,400	54,027	X		
South Gate	Los Angeles	93,900	168,169			
South Pasadena	Los Angeles	25,600	29,539			
Temple City	Los Angeles	34,200	42,201			
Torrance	Los Angeles	145,100	227,868			
Vernon	Los Angeles	85	222,946	X		
Walnut	Los Angeles	32,700	37,642			
West Covina	Los Angeles	106,000	87,933			
West Hollywood	Los Angeles	38,350	47,649			
Westlake Village	Los Angeles	8,475	29,447	X		
Whittier	Los Angeles	84,900	216,000			
Chowchilla	Madera	14,000	11,393	X	X	Rural
Madera	Madera	36,600	35,542			
Madera-Unincorporated	Madera	65,000	44,224			Rural
Marin County Hazardous and Solid Waste Management Authority	Marin County Hazardous and Solid Waste Management Authority	245,830	239,643			

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Mariposa-Unincorporated	Mariposa	16,000	11,729	X	X	Rural
Fort Bragg	Mendocino	6,325	7,162	X	X	Rural
Mendocino-Unincorporated	Mendocino	59,600	34,423			Rural
Point Arena	Mendocino	430	297	X	X	Rural
Ukiah	Mendocino	14,850	15,242	X	X	
Willits	Mendocino	5,125	5,178	X	X	Rural
Merced County Solid Waste Regional Agency	Merced County Solid Waste Regional Agency	205,680	226,547			
Alturas	Modoc	2,990	2,166	X	X	Rural
Modoc-Unincorporated	Modoc	6,700	2,236	X	X	Rural
Mammoth Lakes	Mono	5,275	18,516	X	X	Rural
Mono-Unincorporated	Mono	5,425	7,787	X	X	Rural
Carmel-by-the-Sea	Monterey	4,530	11,421	X	X	Rural
Del Rey Oaks	Monterey	1,680	1,708	X	X	Rural
Gonzales	Monterey	6,800	5,689	X	X	Rural
Greenfield	Monterey	10,350	5,020	X	X	Rural
King City	Monterey	10,400	9,730	X	X	Rural
Marina	Monterey	18,200	16,604	X	X	
Monterey	Monterey	32,800	43,705			
Monterey-Unincorporated	Monterey	102,700	120,905			
Pacific Grove	Monterey	17,300	17,194	X	X	Rural
Salinas	Monterey	129,800	162,972			
Sand City	Monterey	190	3,109	X	X	Rural
Seaside	Monterey	29,700	25,321			
Soledad	Monterey	23,100	6,116	X	X	Rural
American Canyon	Napa	9,125	8,406	X	X	
Napa	Napa	69,300	58,529			
Napa-Unincorporated	Napa	30,400	24,858		X	
Grass Valley	Nevada	9,925	10,426	X	X	
Nevada City	Nevada	2,910	3,552	X	X	Rural

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Nevada-Unincorporated	Nevada	64,900	36,557			Rural
Truckee	Nevada	12,550	19,042	X	X	
Anaheim	Orange	307,700	429,910			
Brea	Orange	36,550	94,466			
Buena Park	Orange	76,200	84,418			
Costa Mesa	Orange	106,100	166,339			
Cypress	Orange	48,750	50,893			
Dana Point	Orange	37,500	46,200			
Fountain Valley	Orange	56,700	67,774			
Fullerton	Orange	127,400	138,375			
Garden Grove	Orange	157,300	158,724			
Huntington Beach	Orange	197,600	237,436			
Irvine	Orange	137,200	366,565			
La Habra	Orange	56,100	67,988			
La Palma	Orange	16,450	11,291	X	X	
Laguna Beach	Orange	25,050	50,058			
Laguna Hills	Orange	30,900	41,818			
Laguna Niguel	Orange	59,500	69,394			
Lake Forest	Orange	59,600	64,791			
Los Alamitos	Orange	12,100	21,161	X	X	
Mission Viejo	Orange	96,800	96,318			
Newport Beach	Orange	74,300	120,317			
Orange	Orange	128,200	202,545			
Orange-Unincorporated	Orange	209,200	211,355			
Placentia	Orange	49,350	45,631			
San Clemente	Orange	49,500	67,286			
San Juan Capistrano	Orange	32,250	66,904			
Santa Ana	Orange	316,500	360,936			
Seal Beach	Orange	27,300	26,802			
Stanton	Orange	34,000	29,805			

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Tustin	Orange	67,200	67,582			
Villa Park	Orange	6,650	5,900	X	X	
Westminster	Orange	86,700	77,325			
Yorba Linda	Orange	62,100	56,668			
Auburn	Placer	11,700	11,449	X	X	
Colfax	Placer	1,510	1,921	X	X	
Lincoln	Placer	8,825	8,630	X	X	
Loomis	Placer	6,050	5,330	X	X	
Placer-Unincorporated	Placer	95,400	91,960			
Rocklin	Placer	31,950	28,692			
Roseville	Placer	72,100	119,277			
Plumas-Unincorporated	Plumas	18,200	17,641	X	X	Rural
Portola	Plumas	2,080	1,683	X	X	Rural
Banning	Riverside	25,450	19,138		X	
Beaumont	Riverside	10,900	11,126	X	X	
Blythe	Riverside	21,050	17,635	X	X	
Calimesa	Riverside	7,675	5,263	X	X	
Canyon Lake	Riverside	11,950	6,035	X	X	
Cathedral City	Riverside	36,950	53,493			
Coachella	Riverside	22,350	16,754	X	X	
Corona	Riverside	117,900	149,341			
Desert Hot Springs	Riverside	15,500	15,627	X	X	
Hemet	Riverside	61,600	48,556			
Indian Wells	Riverside	3,430	15,019	X	X	
Indio	Riverside	44,750	53,265			
La Quinta	Riverside	21,900	33,162	X		
Lake Elsinore	Riverside	29,450	26,807			
Moreno Valley	Riverside	139,800	89,815			
Murrieta	Riverside	41,750	34,013			
Norco	Riverside	25,600	31,806			

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Palm Desert	Riverside	36,500	81,766			
Palm Springs	Riverside	43,100	78,267			
Perris	Riverside	31,750	38,000			
Rancho Mirage	Riverside	11,500	29,713	X		
Riverside	Riverside	255,600	249,673			
Riverside-Unincorporated	Riverside	390,200	371,379			
San Jacinto	Riverside	25,400	19,931		X	
Temecula	Riverside	49,100	64,101			
Folsom	Sacramento	48,600	41,211			
Galt	Sacramento	17,250	6,354	X	X	
Isleton	Sacramento	850	815	X	X	
Sacramento	Sacramento	404,000	476,891			
Sacramento County/City of Citrus Heights Regional Agency	Sacramento County/City of Citrus Heights Regional Agency	718,400	678,999			
San Benito County Integrated Waste Management Regional Agency	San Benito County Integrated Waste Management Regional Agency	48,720	70,610			
Adelanto	San Bernardino	15,300	17,594	X	X	
Apple Valley	San Bernardino	55,400	42,753			
Barstow	San Bernardino	23,150	24,604	X	X	
Big Bear Lake	San Bernardino	6,200	18,460	X	X	
Chino	San Bernardino	65,900	77,427			
Chino Hills	San Bernardino	58,300	33,497			
Colton	San Bernardino	46,800	51,098			
Fontana	San Bernardino	112,100	114,370			
Grand Terrace	San Bernardino	13,400	7,147	X	X	
Hesperia	San Bernardino	62,300	51,533			
Highland	San Bernardino	42,950	23,885		X	
Loma Linda	San Bernardino	21,600	18,704	X	X	

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Montclair	San Bernardino	30,650	36,156			
Needles	San Bernardino	5,875	5,503	X	X	
Ontario	San Bernardino	147,400	257,474			
Rancho Cucamonga	San Bernardino	122,200	118,699			
Redlands	San Bernardino	67,100	60,547			
Rialto	San Bernardino	82,900	64,897			
San Bernardino	San Bernardino	185,600	176,667			
San Bernardino-Unincorporated	San Bernardino	291,100	293,224			
Twentynine Palms	San Bernardino	15,050	10,422	X	X	
Upland	San Bernardino	68,100	60,659			
Victorville	San Bernardino	63,000	62,928			
Yucaipa	San Bernardino	38,950	29,330			
Yucca Valley	San Bernardino	19,000	15,484	X	X	
Carlsbad	San Diego	77,600	106,083			
Chula Vista	San Diego	167,100	139,605			
Coronado	San Diego	28,750	42,521			
Del Mar	San Diego	5,325	15,761	X	X	Rural
El Cajon	San Diego	95,600	77,908			
Encinitas	San Diego	60,500	71,559			
Escondido	San Diego	125,700	135,572			
Imperial Beach	San Diego	28,900	18,478		X	
La Mesa	San Diego	58,700	57,635			
Lemon Grove	San Diego	25,700	29,667			
National City	San Diego	55,000	65,537			
Oceanside	San Diego	158,000	126,522			
Poway	San Diego	48,450	49,513			
San Diego	San Diego	1,255,400	1,710,339			
San Diego-Unincorporated	San Diego	456,900	404,404			
San Marcos	San Diego	52,100	76,869			
Santee	San Diego	57,400	55,553			

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Solana Beach	San Diego	14,150	18,109	X	X	
Vista	San Diego	84,400	97,962			
San Francisco	San Francisco	793,300	806,692			
Escalon	San Joaquin	5,750	8,587	X	X	Rural
Lathrop	San Joaquin	9,550	16,406	X	X	
Lodi	San Joaquin	57,200	71,197			
Manteca	San Joaquin	48,250	45,256			
Ripon	San Joaquin	10,050	10,456	X	X	Rural
San Joaquin-Unincorporated	San Joaquin	130,900	123,768			
Stockton	San Joaquin	244,900	302,407			
Tracy	San Joaquin	50,600	68,684			
El Paso De Robles	San Luis Obispo	22,300	30,534	X		
San Luis Obispo County Integrated Waste Management Authority	San Luis Obispo County Integrated Waste Management Authority	216,975	213,754			
Atherton	San Mateo	7,525	13,153	X	X	
Belmont	San Mateo	26,150	24,668		X	
Brisbane	San Mateo	3,390	11,288	X	X	
Burlingame	San Mateo	29,400	46,440			
Colma	San Mateo	1,290	8,927	X	X	
Daly City	San Mateo	104,400	76,115			
East Palo Alto	San Mateo	25,650	19,716		X	
Foster City	San Mateo	30,750	25,173			
Half Moon Bay	San Mateo	11,200	26,741	X		
Hillsborough	San Mateo	11,650	15,558	X	X	
Menlo Park	San Mateo	31,600	51,138			
Millbrae	San Mateo	21,650	20,049	X	X	
Pacifica	San Mateo	40,800	24,164		X	
Portola Valley	San Mateo	4,600	7,549	X	X	
Redwood City	San Mateo	76,700	112,394			

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
San Bruno	San Mateo	41,700	35,891			
San Carlos	San Mateo	28,800	44,864			
San Mateo	San Mateo	94,300	127,363			
San Mateo-Unincorporated	San Mateo	66,000	76,970			
South San Francisco	San Mateo	61,100	99,031			
Woodside	San Mateo	5,700	16,561	X	X	
Buellton	Santa Barbara	3,820	3,538	X	X	Rural
Carpinteria	Santa Barbara	14,850	16,778	X	X	Rural
Guadalupe	Santa Barbara	6,450	5,450	X	X	Rural
Lompoc	Santa Barbara	42,500	35,366			
Santa Barbara	Santa Barbara	91,400	111,409			
Santa Barbara-Unincorporated	Santa Barbara	171,000	179,869			
Santa Maria	Santa Barbara	71,600	94,013			
Solvang	Santa Barbara	5,275	4,833	X	X	Rural
Campbell	Santa Clara	39,750	40,426			
Cupertino	Santa Clara	47,500	41,812			
Gilroy	Santa Clara	38,950	48,513			
Los Altos	Santa Clara	28,400	21,568		X	
Los Altos Hills	Santa Clara	8,225	6,069	X	X	
Los Gatos	Santa Clara	30,150	31,607			
Milpitas	Santa Clara	64,100	67,785			
Monte Sereno	Santa Clara	3,430	2,198	X	X	
Morgan Hill	Santa Clara	31,800	32,039			
Mountain View	Santa Clara	74,900	68,386			
Palo Alto	Santa Clara	61,000	80,187			
San Jose	Santa Clara	906,000	791,556			
Santa Clara	Santa Clara	102,300	195,984			
Santa Clara-Unincorporated	Santa Clara	109,400	79,428			
Saratoga	Santa Clara	31,150	21,071		X	
Sunnyvale	Santa Clara	132,500	111,806			

Jurisdiction	**County**	**Population**	**Disposal**	**Population <25,000**	**Disposal <25,000**	**Status**
Capitola	Santa Cruz	11,100	12,304	X	X	
Santa Cruz	Santa Cruz	55,600	69,477			
Santa Cruz-Unincorporated	Santa Cruz	137,300	113,109			
Scotts Valley	Santa Cruz	10,650	13,764	X	X	
Watsonville	Santa Cruz	37,400	40,269			
Redding	Shasta	78,400	84,510			
Shasta County Waste Management Agency	Shasta County Waste Management Agency	86,450	75,753			
Sierra County Regional Agency	Sierra County Regional Agency	3,250	2,399	X	X	Rural*
Siskiyou County Integrated Solid Waste Management Regional Agency	Siskiyou County Integrated Solid Waste Management Regional Agency	43,920	16,508		X	Rural*
Benicia	Solano	28,650	36,166			
Dixon	Solano	15,100	14,070	X	X	
Fairfield	Solano	92,400	102,937			
Rio Vista	Solano	4,350	4,682	X	X	
Solano-Unincorporated	Solano	20,650	20,994	X	X	
Suisun City	Solano	26,700	14,304		X	
Vacaville	Solano	89,300	82,779			
Vallejo	Solano	112,700	102,543			
Sonoma County Waste Management Agency	Sonoma County Waste Management Agency	443,800	516,585			
Ceres	Stanislaus	32,550	29,365			
Hughson	Stanislaus	3,610	3,770	X	X	Rural
Modesto	Stanislaus	185,600	194,860			
Newman	Stanislaus	6,050	6,886	X	X	Rural
Oakdale	Stanislaus	14,800	21,366	X	X	
Patterson	Stanislaus	10,450	11,676	X	X	Rural
Riverbank	Stanislaus	14,550	14,369	X	X	Rural

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Stanislaus-Unincorporated	Stanislaus	108,900	108,286			
Turlock	Stanislaus	52,200	50,270			
Waterford	Stanislaus	6,650	3,991	X	X	Rural
Tehama County Sanitary Landfill Regional Agency	Tehama County Sanitary Landfill Regional Agency	55,220	42,787			Rural*
Trinity-Unincorporated	Trinity	13,100	5,390	X	X	Rural
Exeter	Tulare	8,575	7,938	X	X	Rural
Farmersville	Tulare	7,550	5,760	X	X	Rural
Tulare-Unincorporated	Tulare	143,400	120,206			
Woodlake	Tulare	6,275	4,287	X	X	Rural
Sonora	Tuolumne	4,220	3,913	X	X	Rural
Tuolumne-Unincorporated	Tuolumne	48,550	31,432			Rural
Upper Valley Waste Management Agency	Upper Valley Waste Management Agency	45,015	38,021			
Camarillo	Ventura	61,800	71,589			
Fillmore	Ventura	13,250	8,236	X	X	
Moorpark	Ventura	29,700	28,149			
Ojai	Ventura	8,250	12,849	X	X	
Oxnard	Ventura	158,900	196,229			
Port Hueneme	Ventura	22,700	31,346	X		
San Buenaventura	Ventura	102,700	138,329			
Santa Paula	Ventura	27,250	29,415			
Simi Valley	Ventura	109,400	131,328			
Thousand Oaks	Ventura	118,000	93,306			
Ventura-Unincorporated	Ventura	93,000	122,963			
West Contra Costa Integrated Waste Management Authority	West Contra Costa Integrated Waste Management Authority	183,700	194,842			
Davis	Yolo	55,500	42,050			
West Sacramento	Yolo	30,150	42,536			
Winters	Yolo	5,300	5,223	X	X	

Jurisdiction	County	Population	Disposal	Population <25,000	Disposal <25,000	Status
Woodland	Yolo	45,200	57,936			
Yolo-Unincorporated	Yolo	21,250	25,540	X		
Yuba/Sutter Regional Waste Management Authority	Yuba/Sutter Regional Waste Management Authority	142,345	132,294			

California Counties and Regional Agencies with Disposal Less than 60,000 Tons in 1999

County	Disposal Tons
Alpine	1,988
Amador County Integrated Solid Waste Management Agency	31,525
Calaveras	30,292
Colusa County Regional Agency	15,866
Del Norte Solid Waste Management Authority	18,097
Glenn County Waste Management Regional Agency	18,137
Inyo Regional Waste Management Agency	13,446
Kings	10,807
Lake	51,818
Lassen Regional Solid Waste Management Authority	13,942
Mariposa	11,729
Modoc	4,402
Mono	26,303
Plumas	19,324
San Luis Obispo	30,534
Sierra County Regional Agency	2,399
Siskiyou County Integrated Solid Waste Management Regional Agency	16,508
Tehama County Sanitary Landfill Regional Agency	42,787
Trinity	5,390
Tuolumne	35,345
Upper Valley Waste Management Agency	38,021